

APPROVED	O.G. FIG.	
BY	CLASS	SUBJECT
DRAFTSMAN		



Point Curvature: Large
 Aspect Ratio: Small ($\div 1$)

FIG. 1A PRIOR ART



Point Curvature: Little Small
 Aspect Ratio: Small ($\div 4.5$)

FIG. 1B PRIOR ART



Point Curvature: Little Small
 Aspect Ratio: Small ($\div 1$)

FIG. 1C PRIOR ART

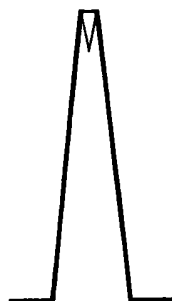
669707 "12502460

APPROVED	O.G. FIG.	
BY	CLASS	SUBCL.
DRAFTSMAN		



Point Curvature: Small (Several nm)
Aspect Ratio: Large ($\div 10$)

FIG. 1D PRESENT INVENTION



Point Curvature: Small (Several nm)
Aspect Ratio: Large ($\div 10$)

FIG. 1E PRESENT INVENTION

66307-12502100

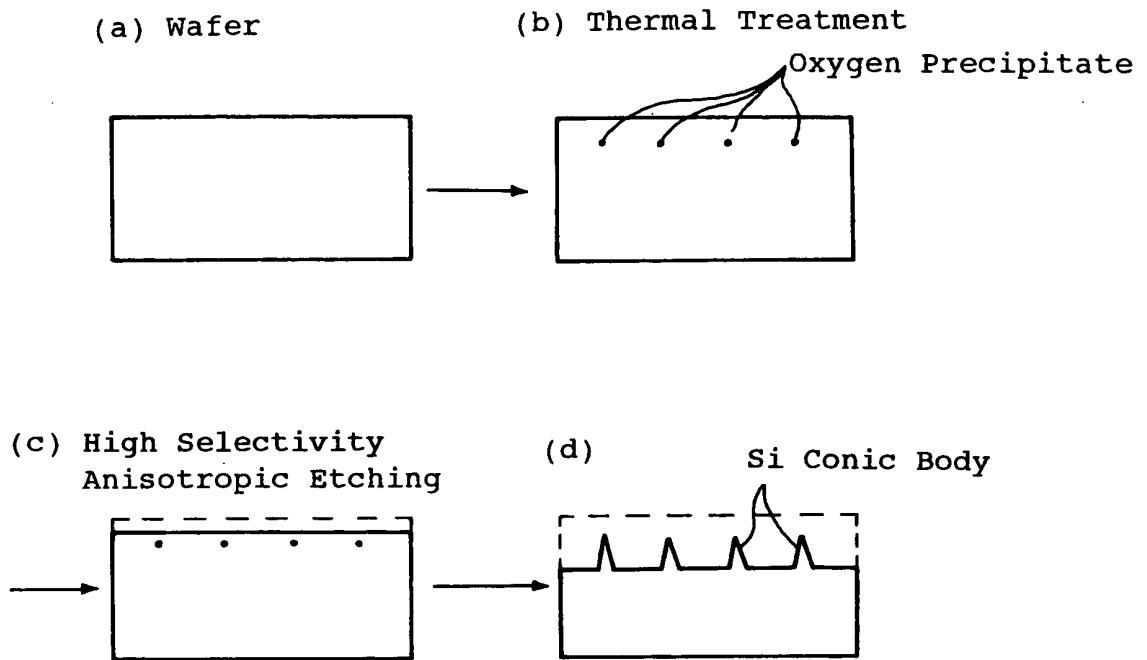


FIG. 2

FIG. 3A

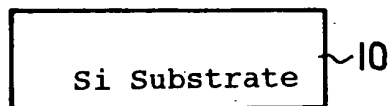


FIG. 3B

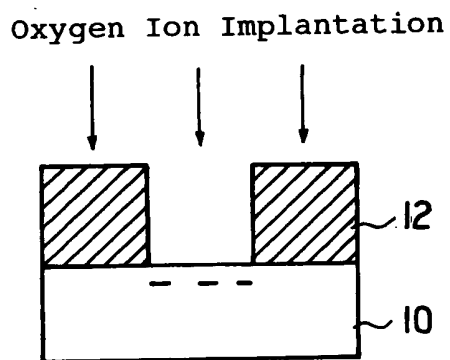


FIG. 3C

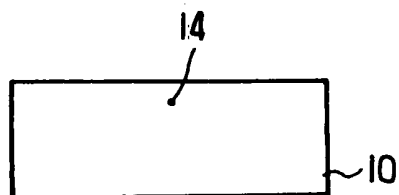
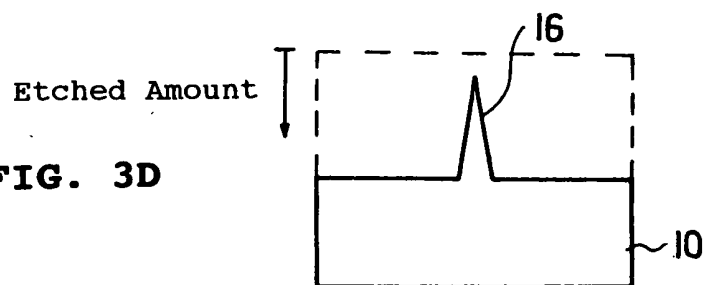


FIG. 3D

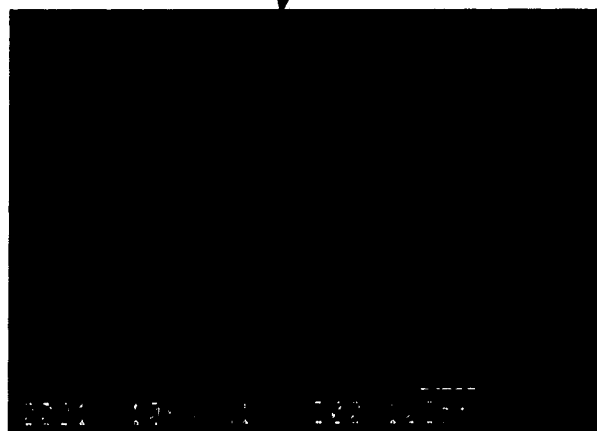


(a)



1 μ m

(b)



100nm

FIG. 4

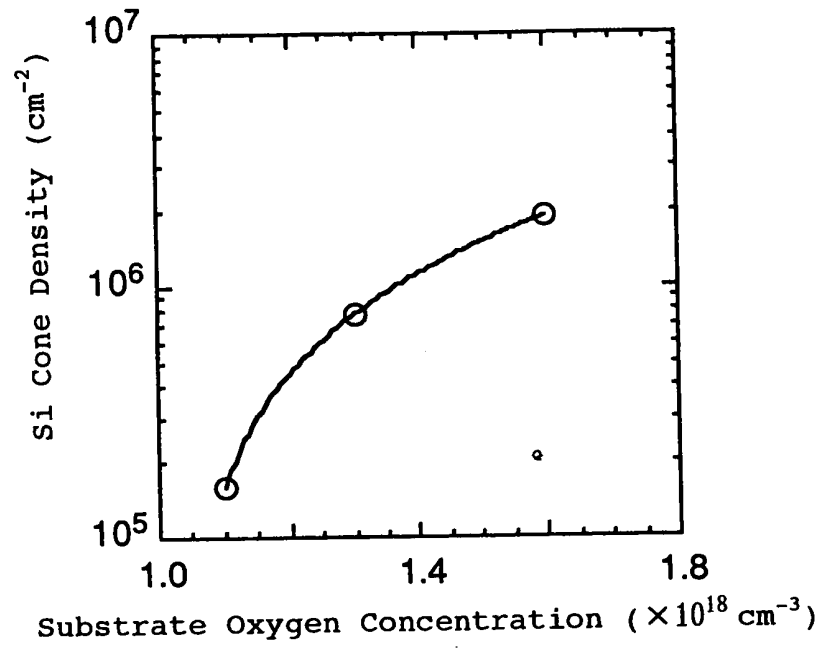
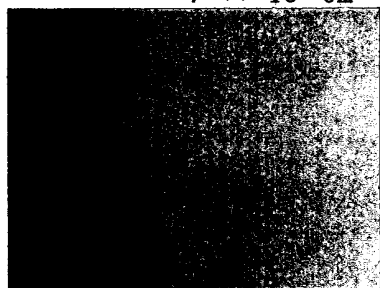


FIG. 5

0068-039-0

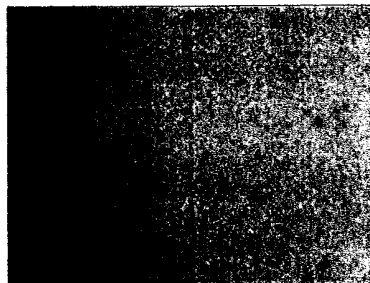
B Implantation Amount:
 $7 \times 10^{13} \text{cm}^{-2}$



100 μm

FIG. 6A

B Implantation Amount:
 $1 \times 10^{14} \text{cm}^{-2}$



100 μm

Black dots are silicon needle conic bodies.

FIG. 6B

669707 12502160

DATE	FIG.
DESIGN	SUBJECT
DRAWN BY	

FIG. 7A

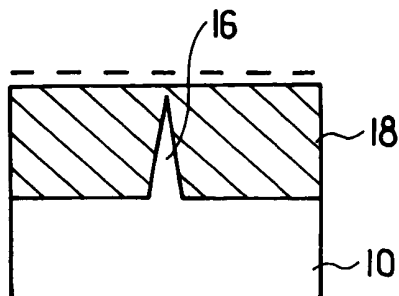


FIG. 7B

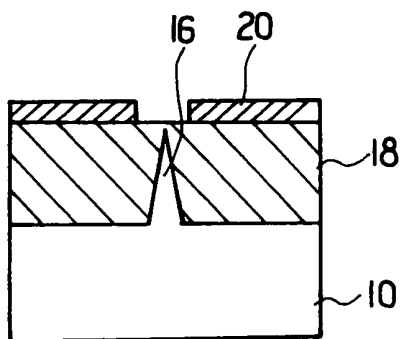
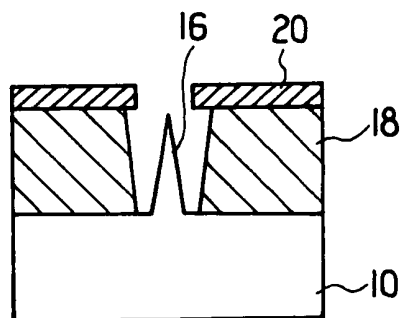


FIG. 7C



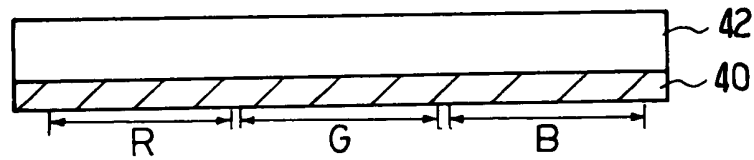


FIG. 8A

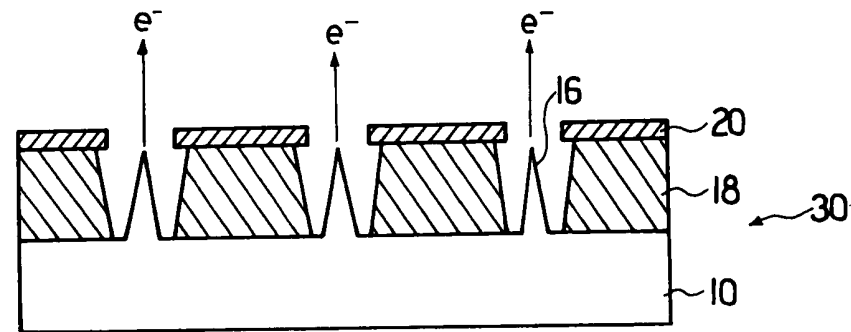
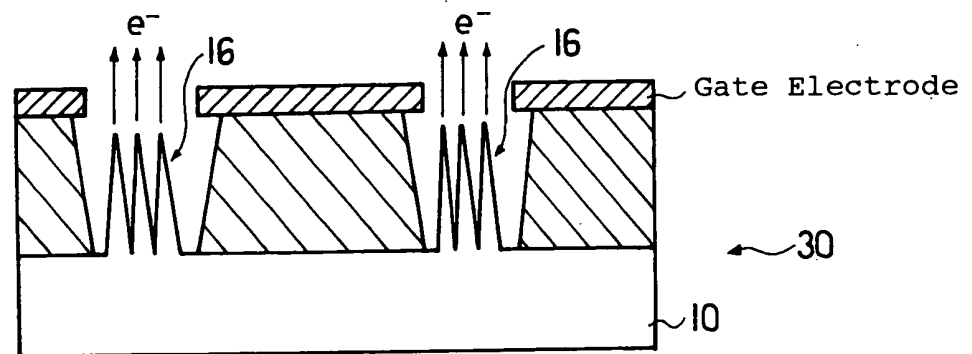
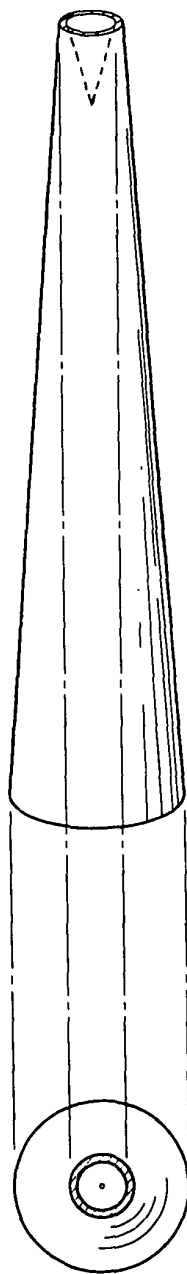


FIG. 8B



0068-597-0

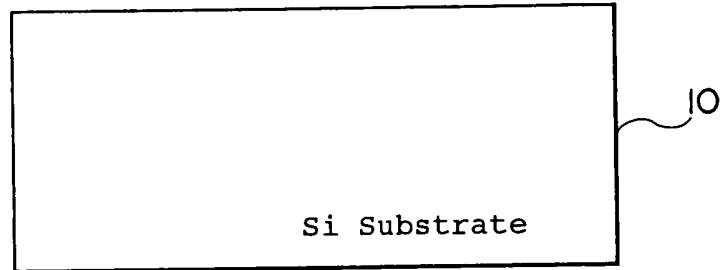
(a)



(b)

FIG. 9

FIG. 10A



Oxygen Ion Implantation



FIG. 10B

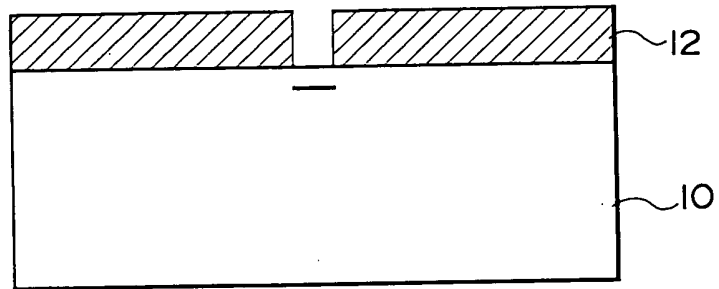
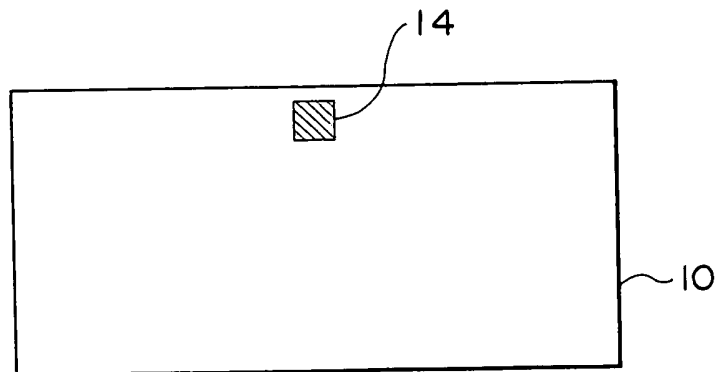
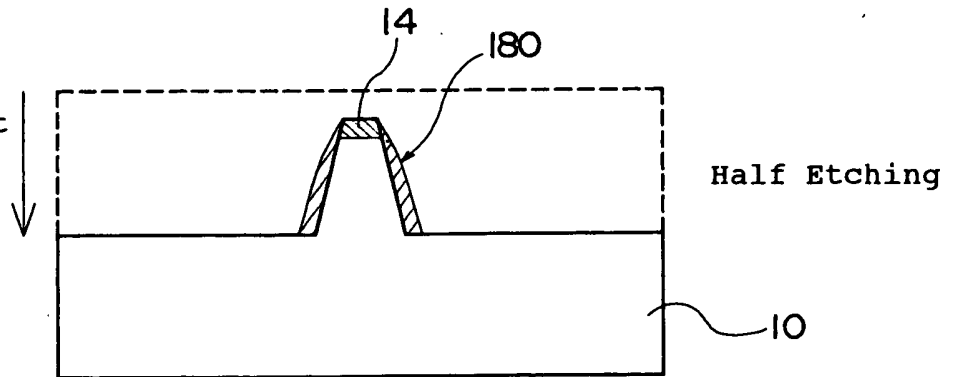


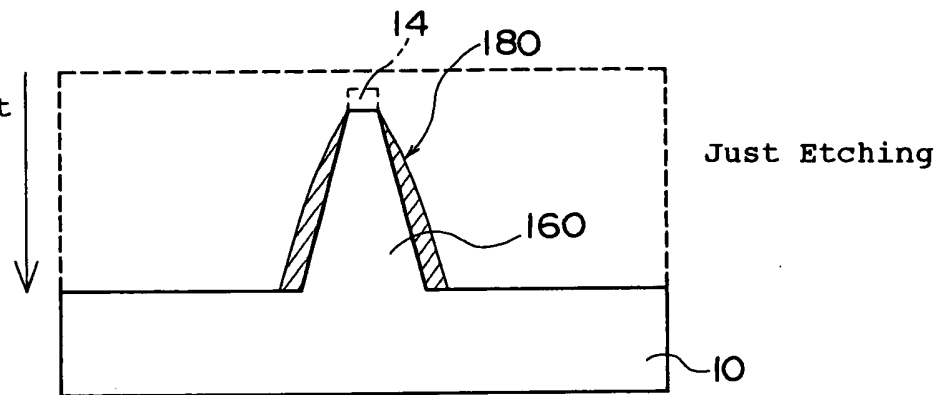
FIG. 10C



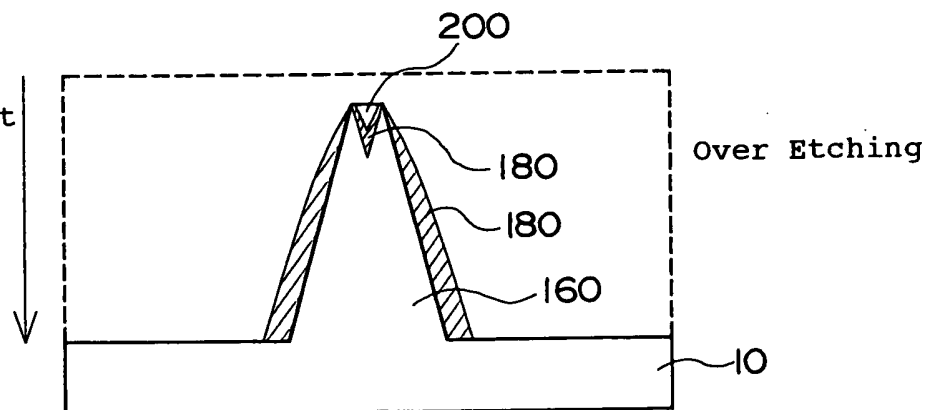
Etched Amount
FIG. 10D



Etched Amount
FIG. 10E



Etched Amount
FIG. 10F



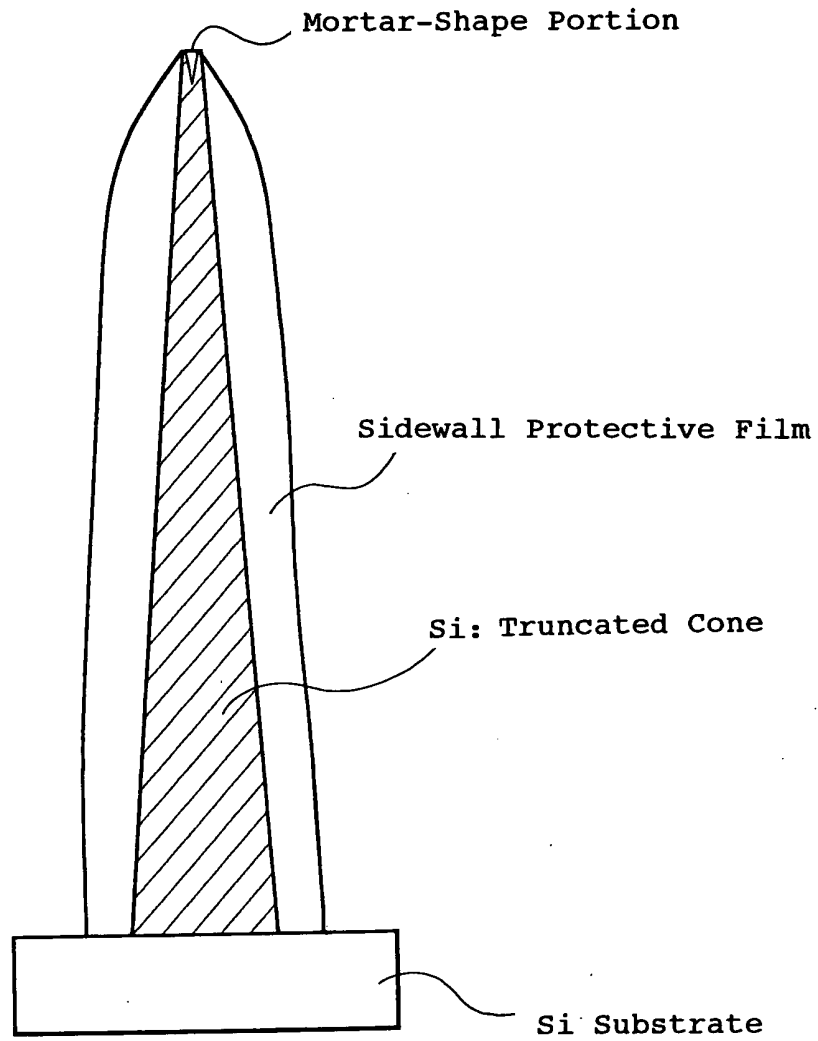


FIG. 11

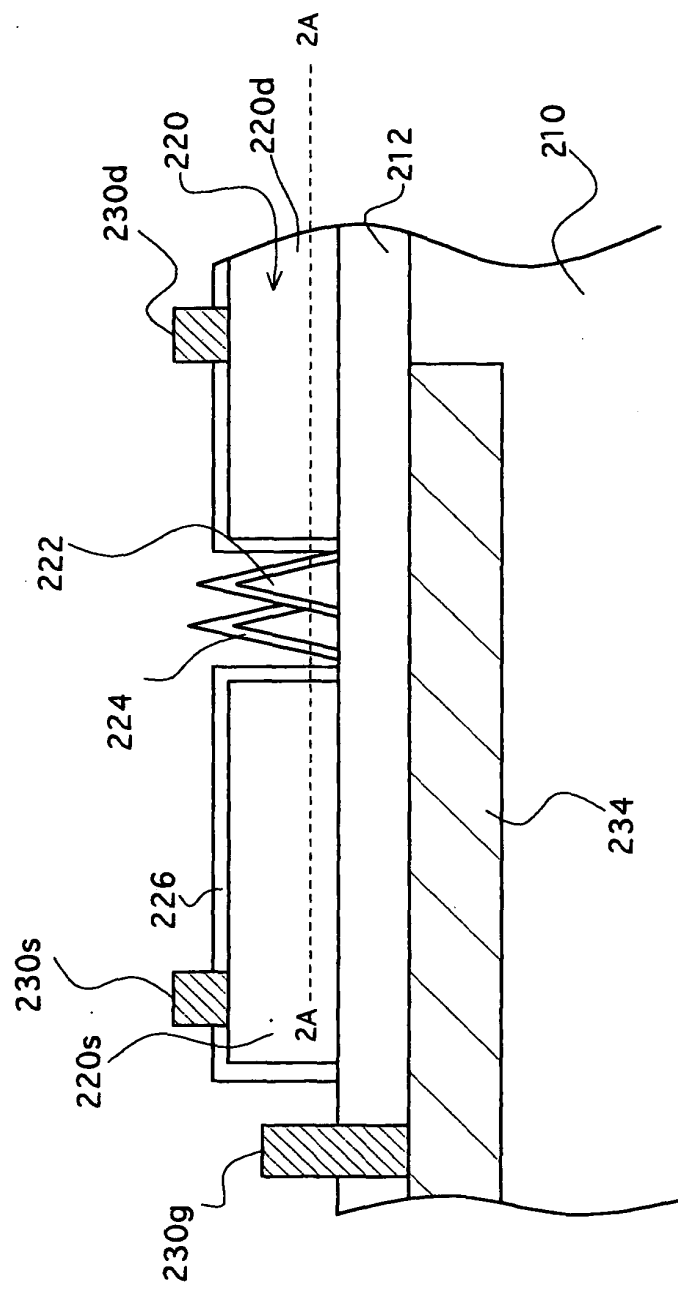


FIG. 18

FIG. 12A

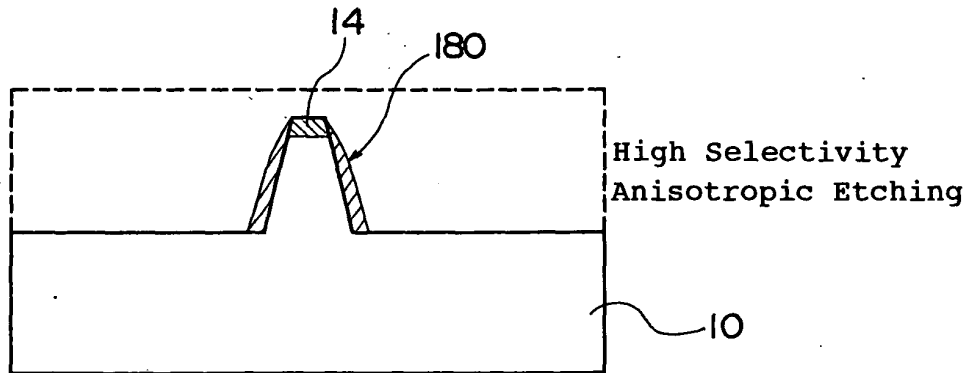


FIG. 12B

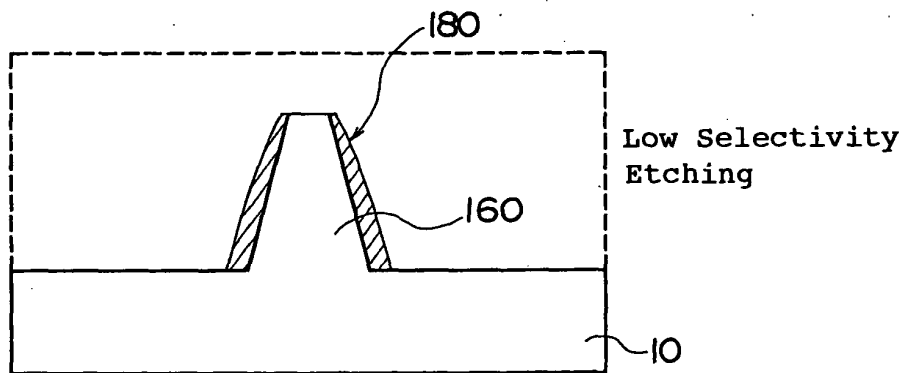


FIG. 12C

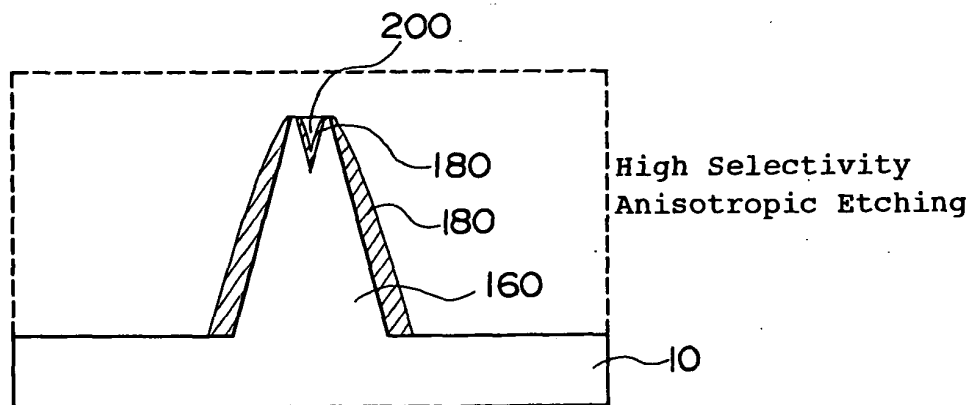
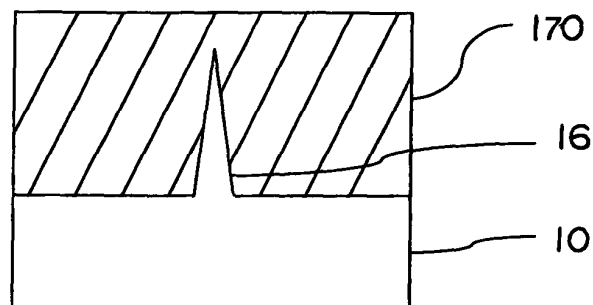
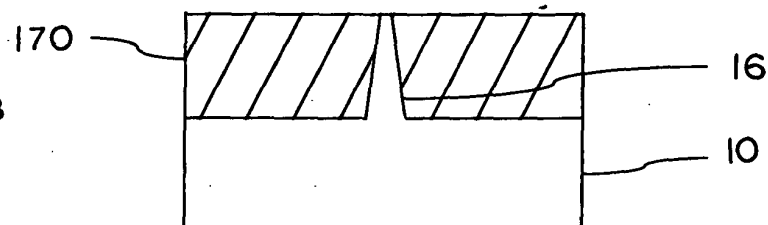


FIG. 13A



CMP or Etch Back

FIG. 13B



High Selectivity
Anisotropic Etching

FIG. 13C

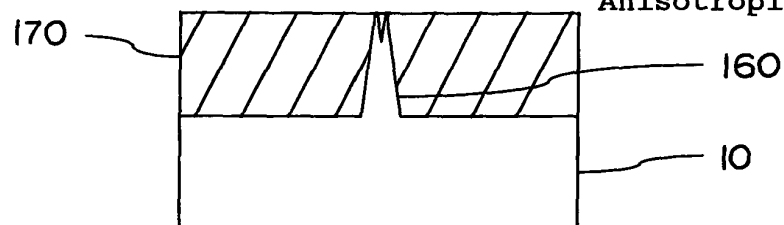
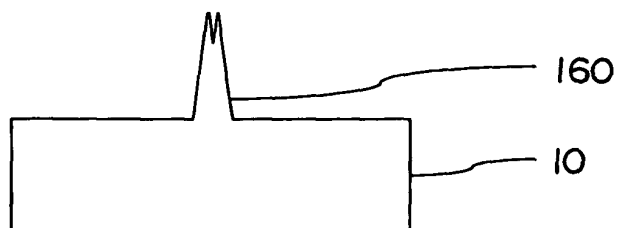


FIG. 13D



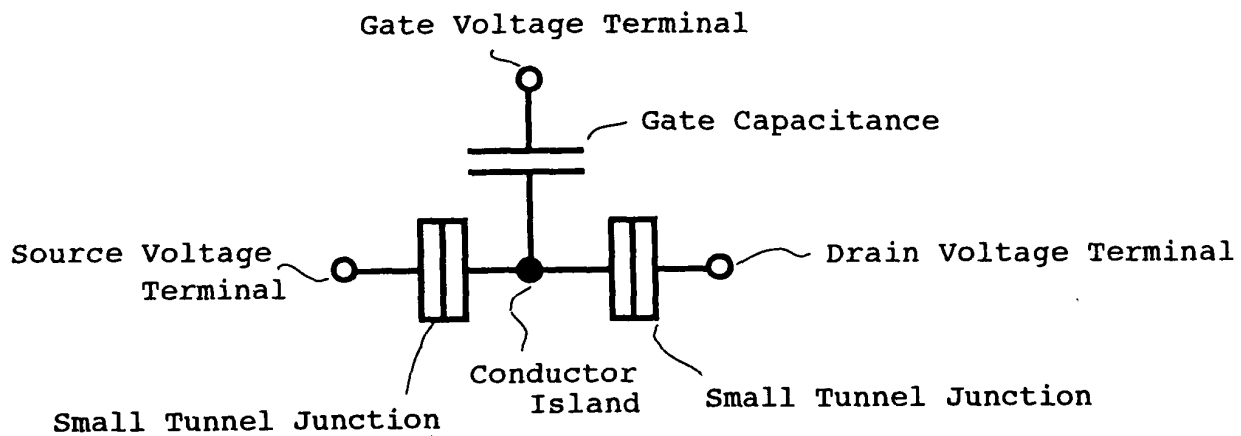


FIG. 14A PRIOR ART

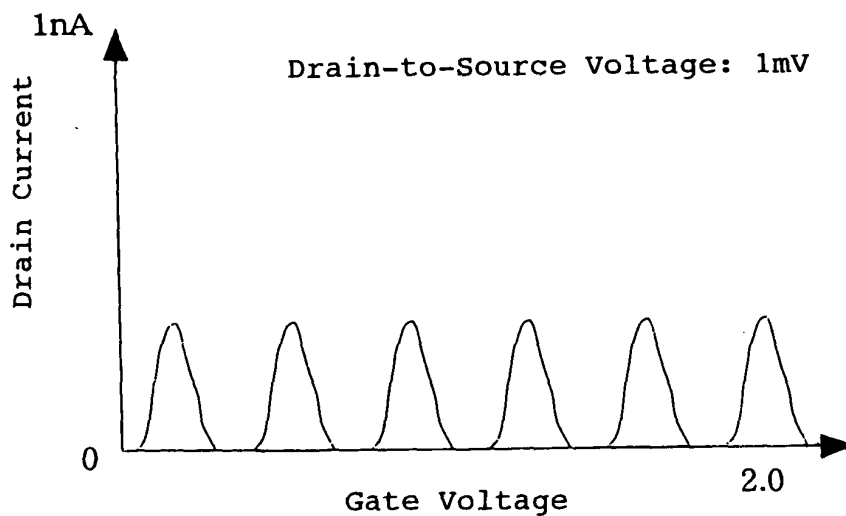


FIG. 14B PRIOR ART

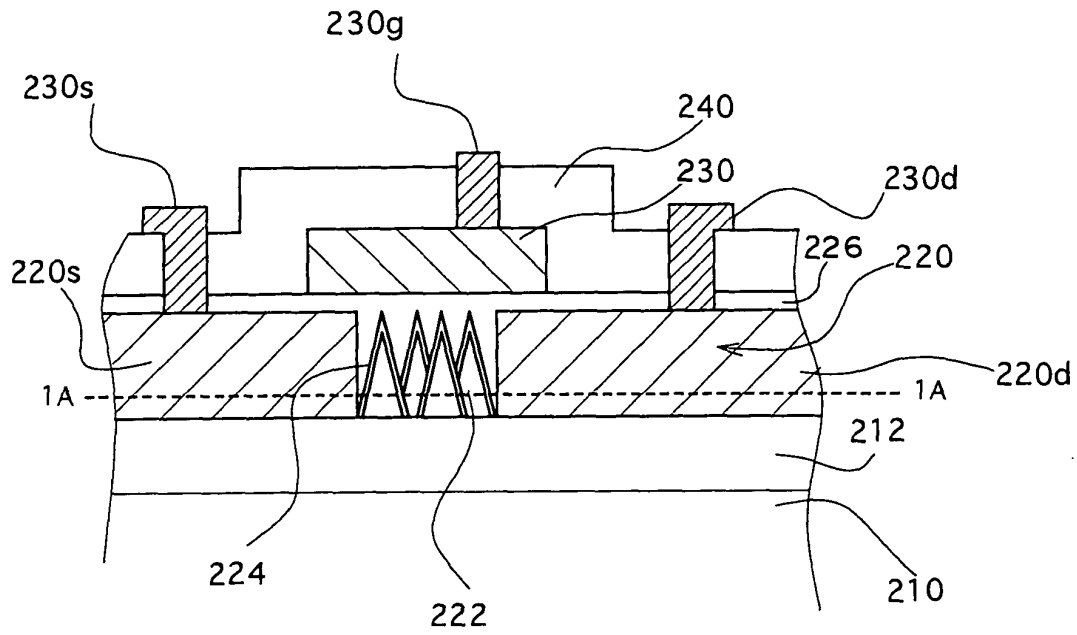


FIG. 15A

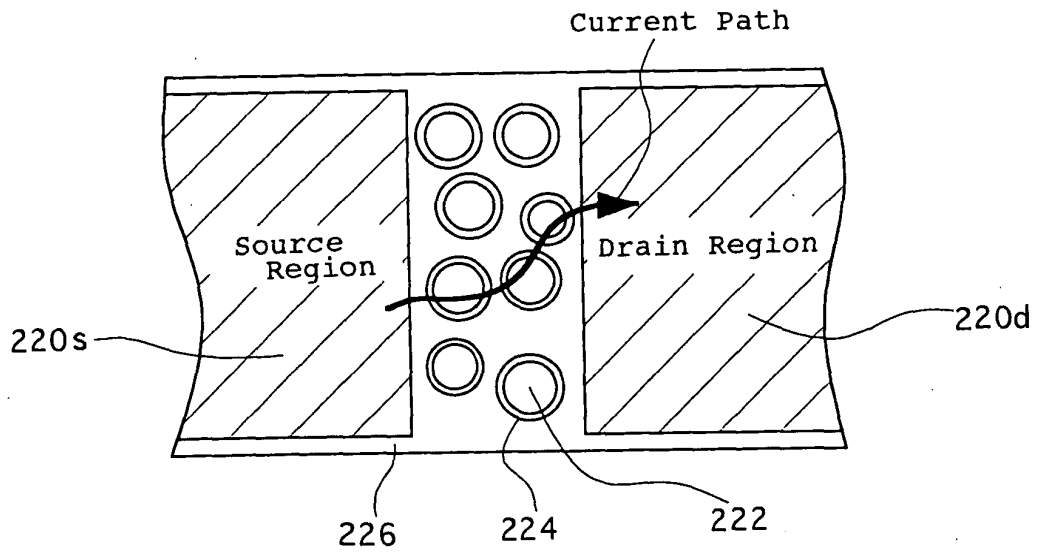
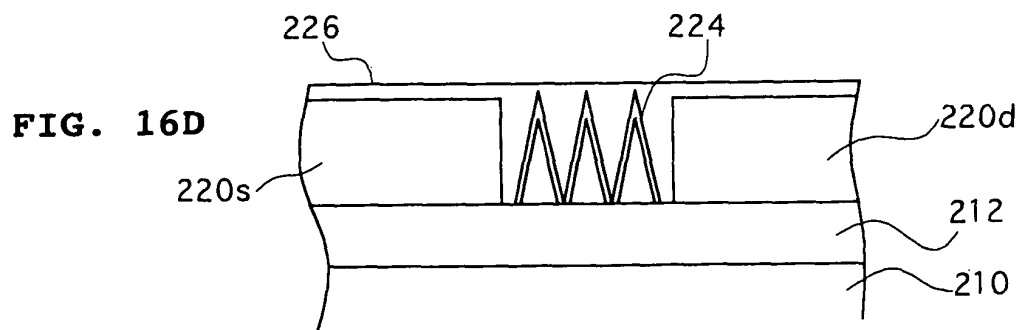
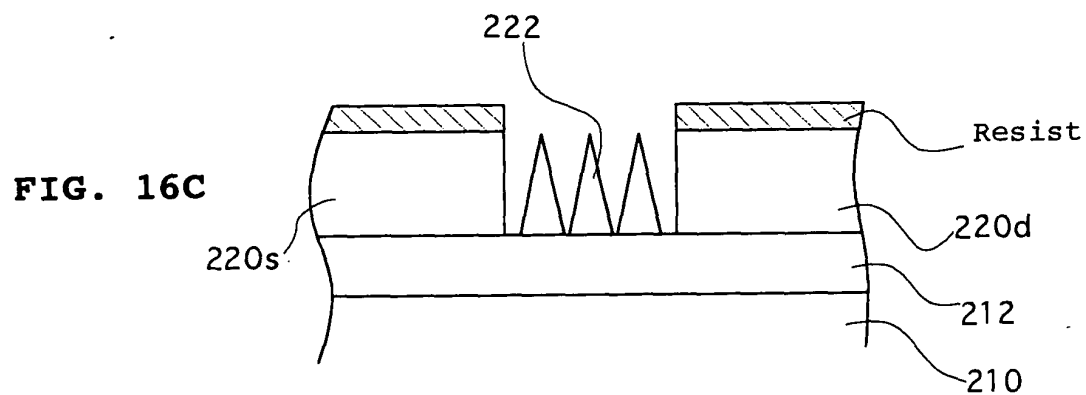
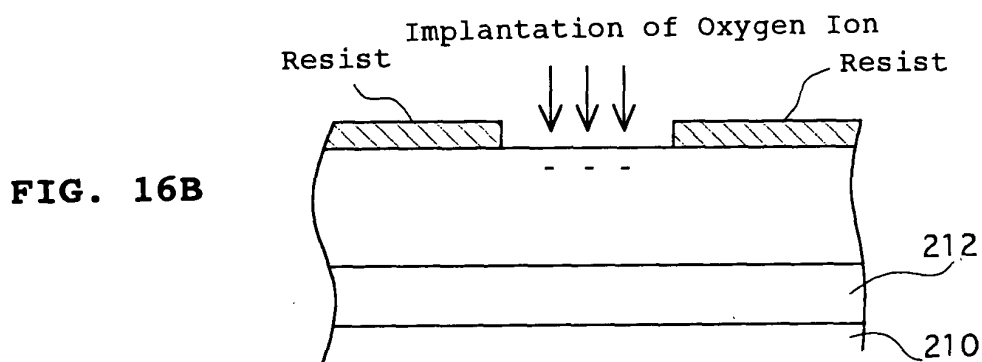
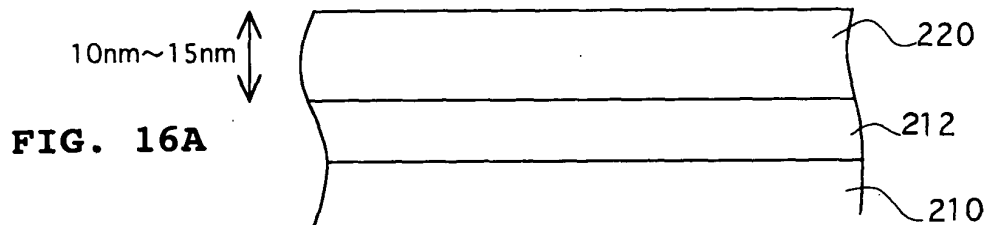


FIG. 15B



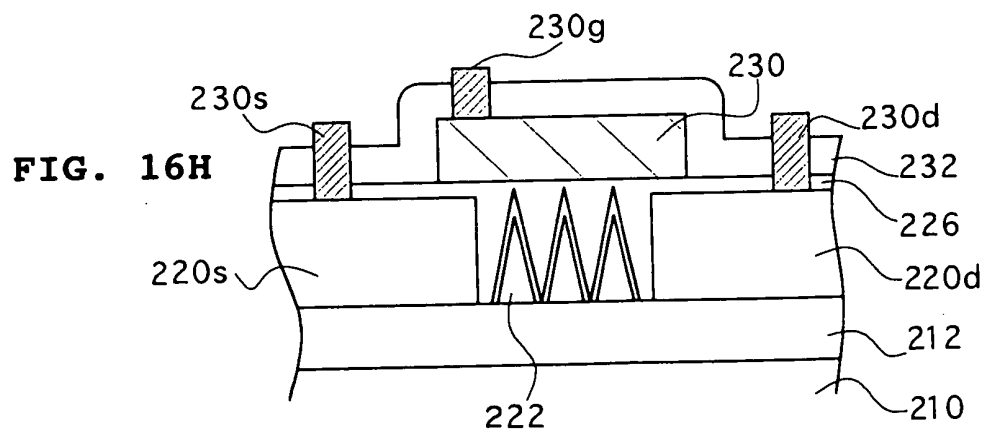
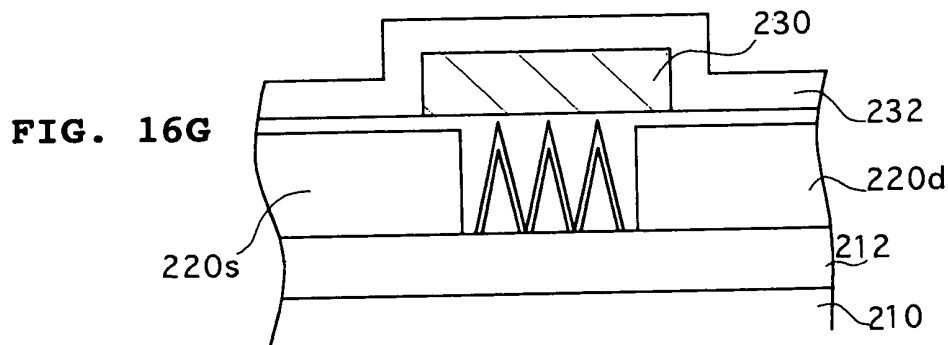
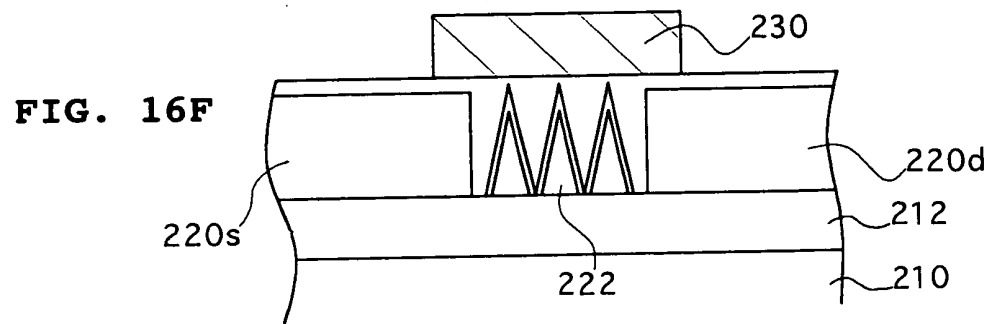
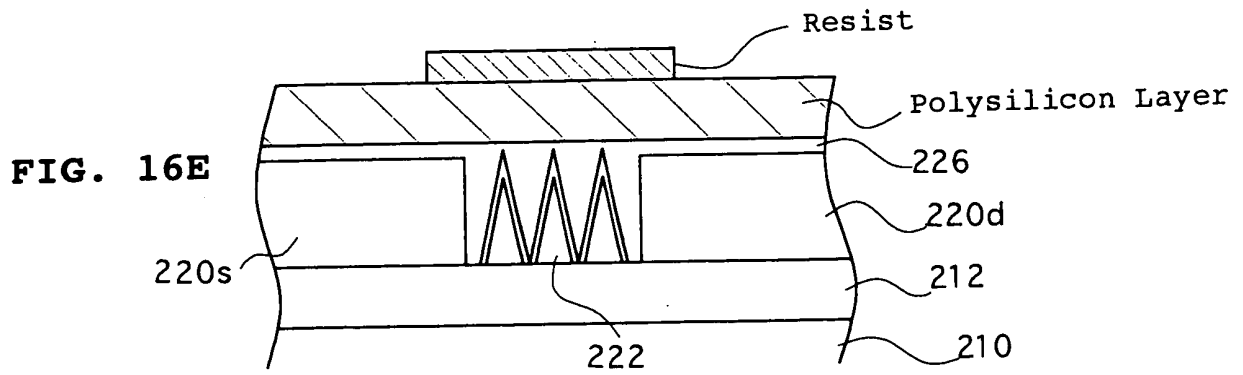
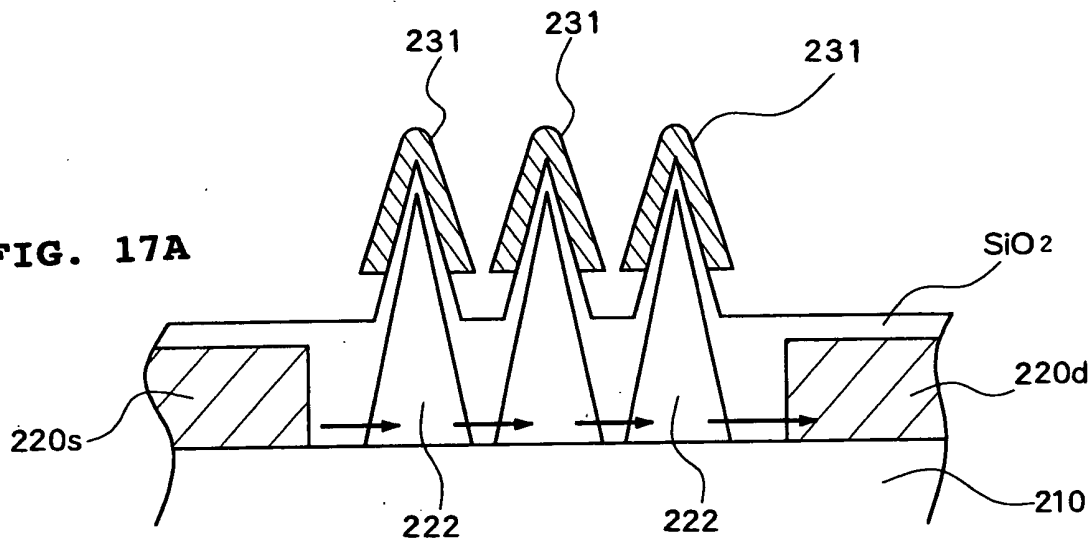


FIG. 17A



Selective Gate Control

FIG. 17B

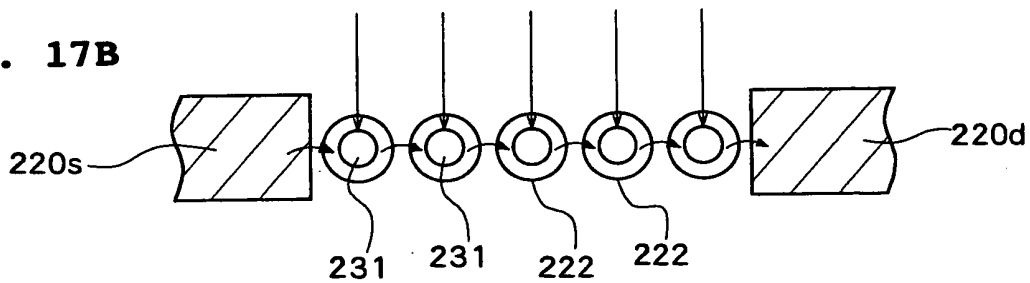
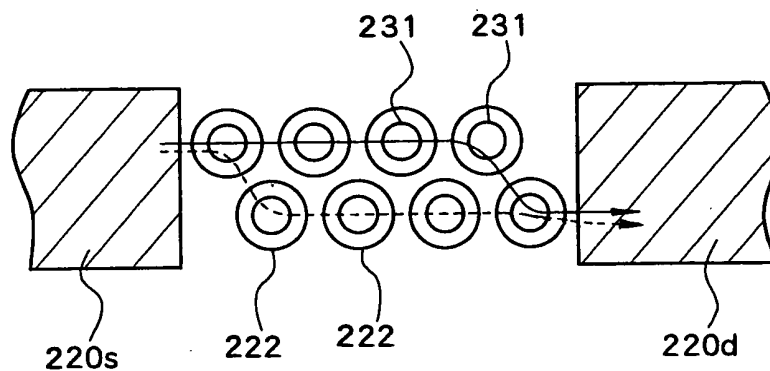


FIG. 17C



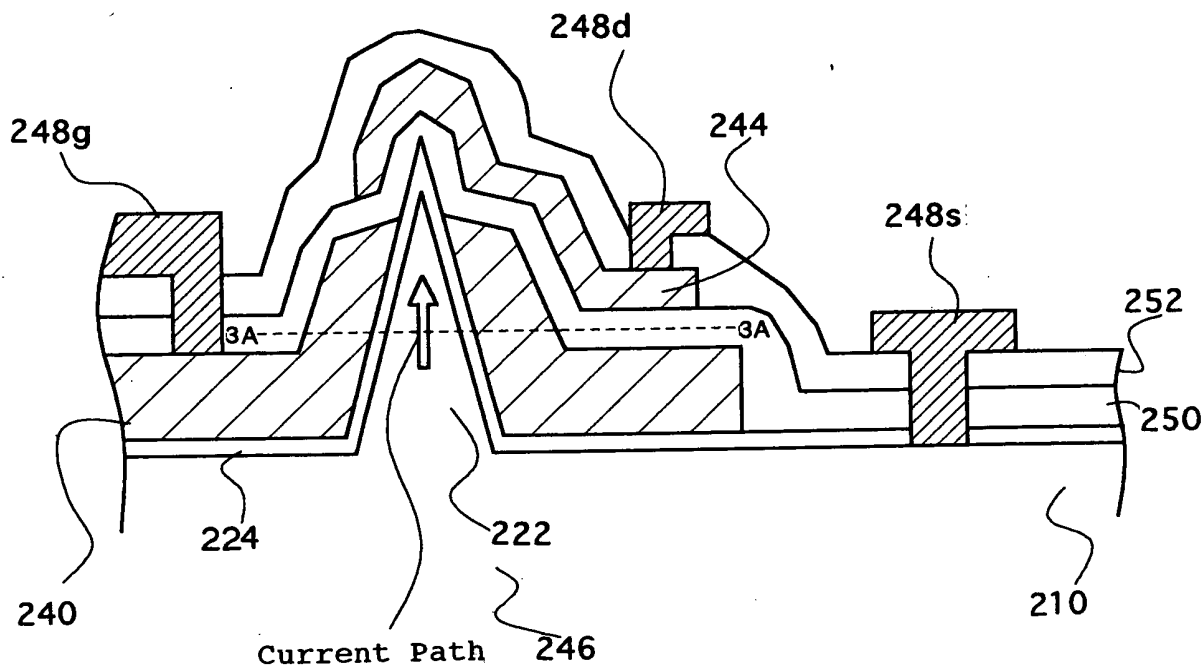


FIG. 19A

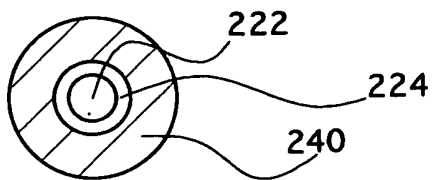
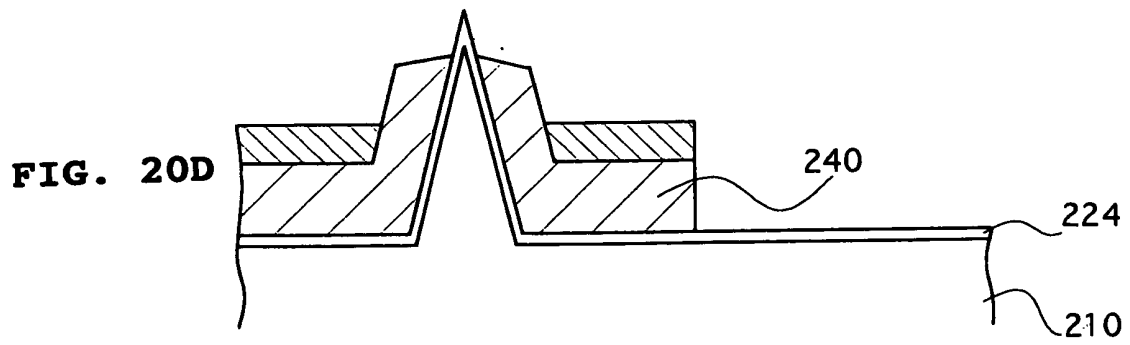
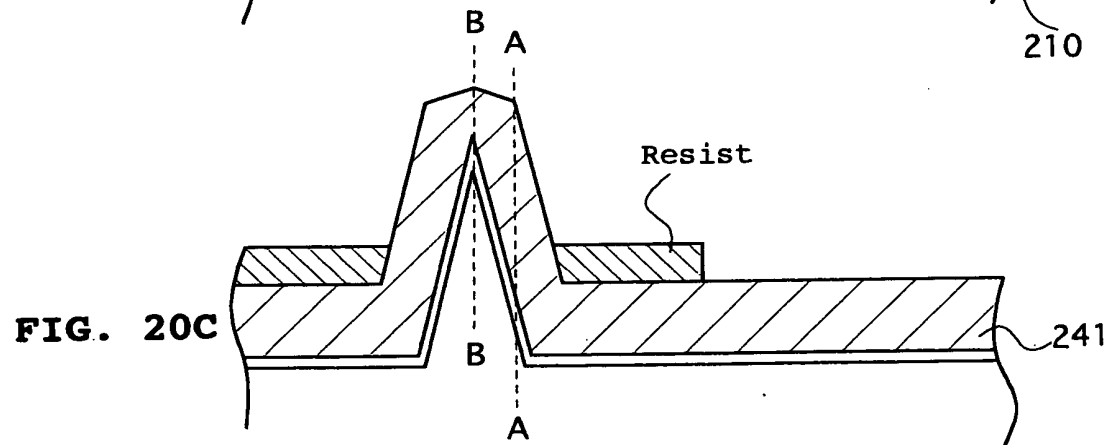
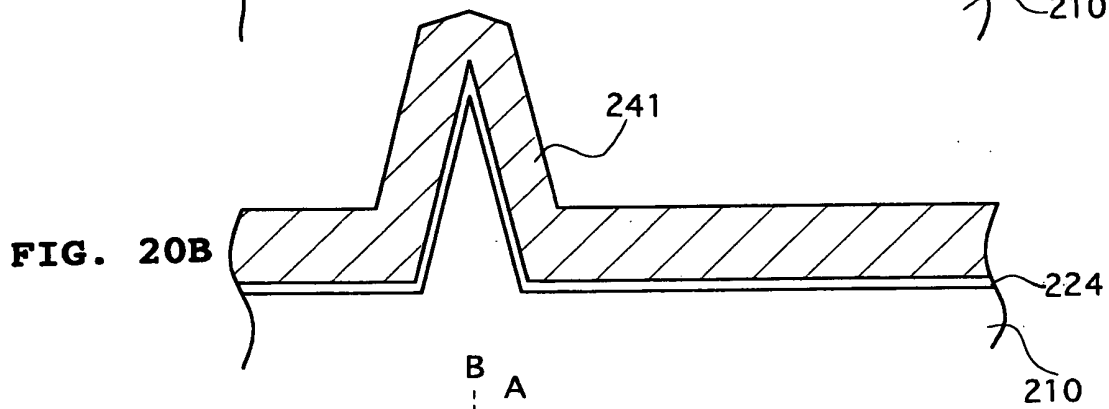
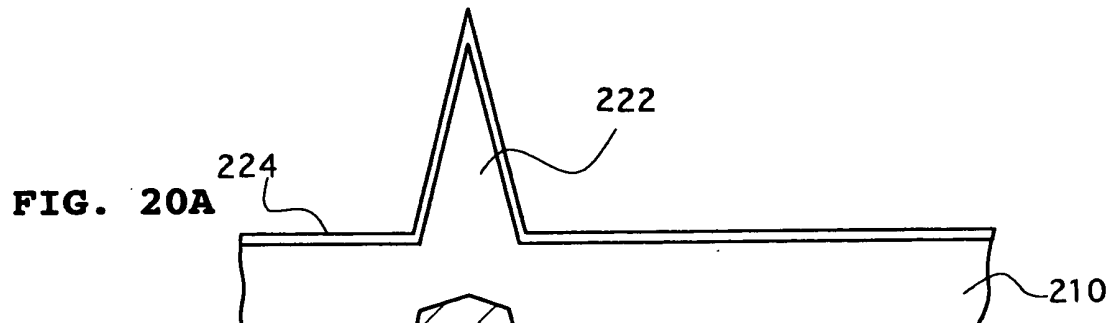


FIG. 19B



664707-12302160

FIG. 20E

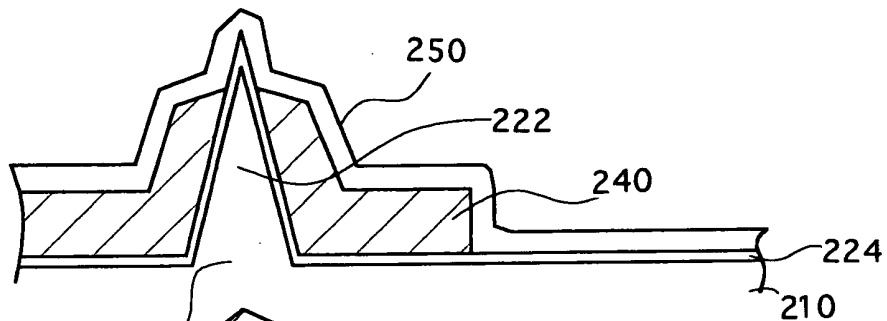


FIG. 20F

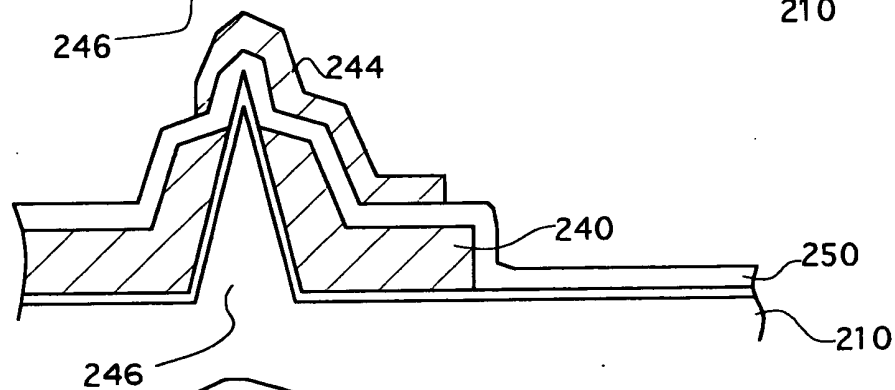


FIG. 20G

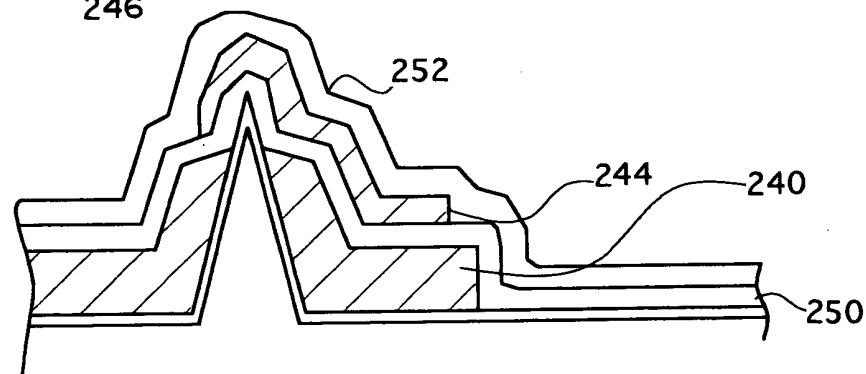
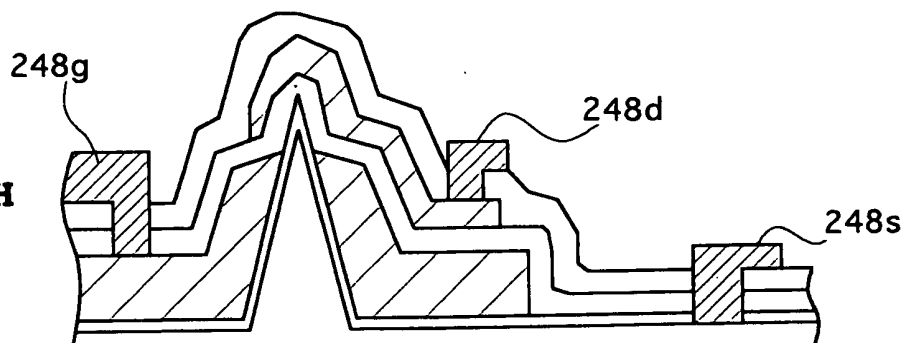


FIG. 20H



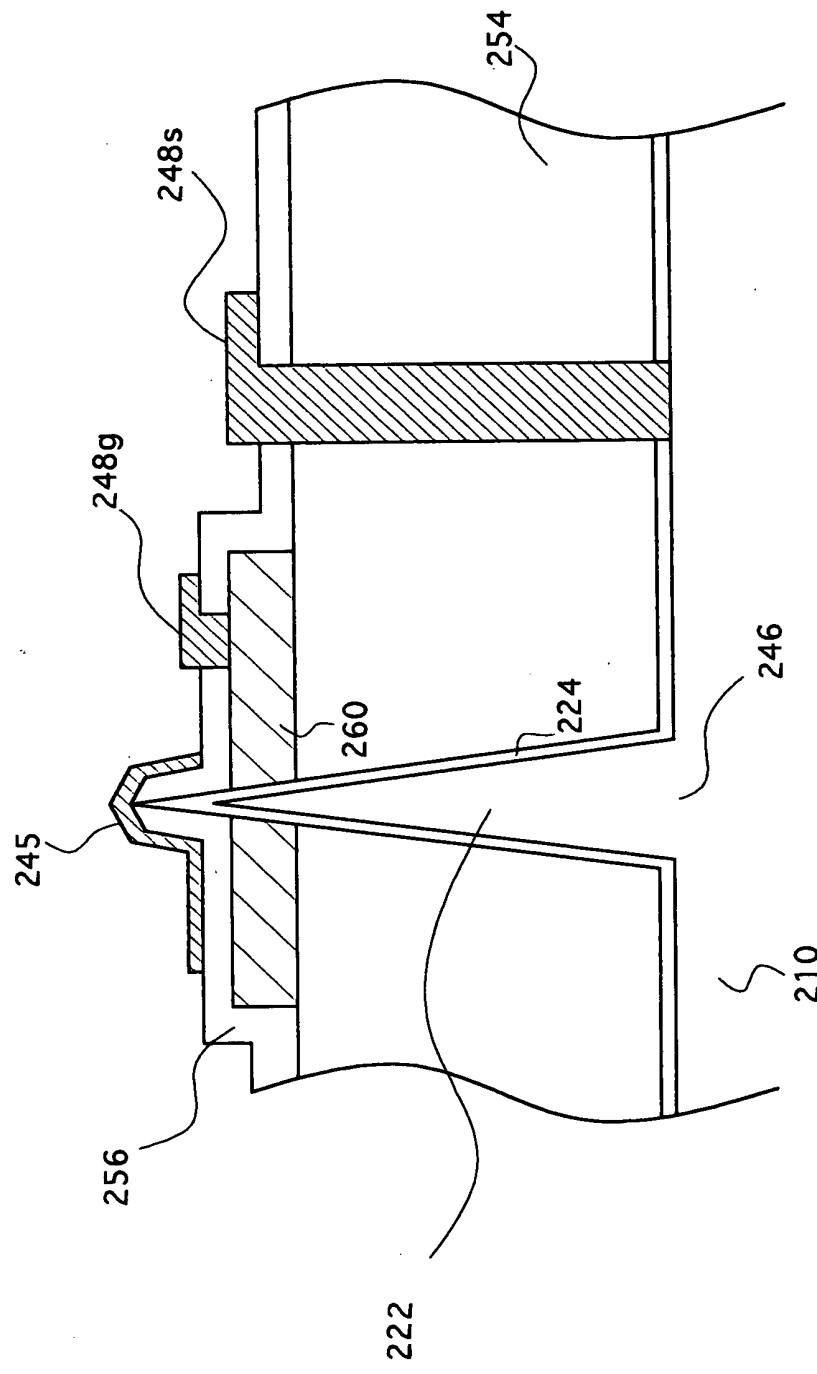


FIG. 21

FIG. 22

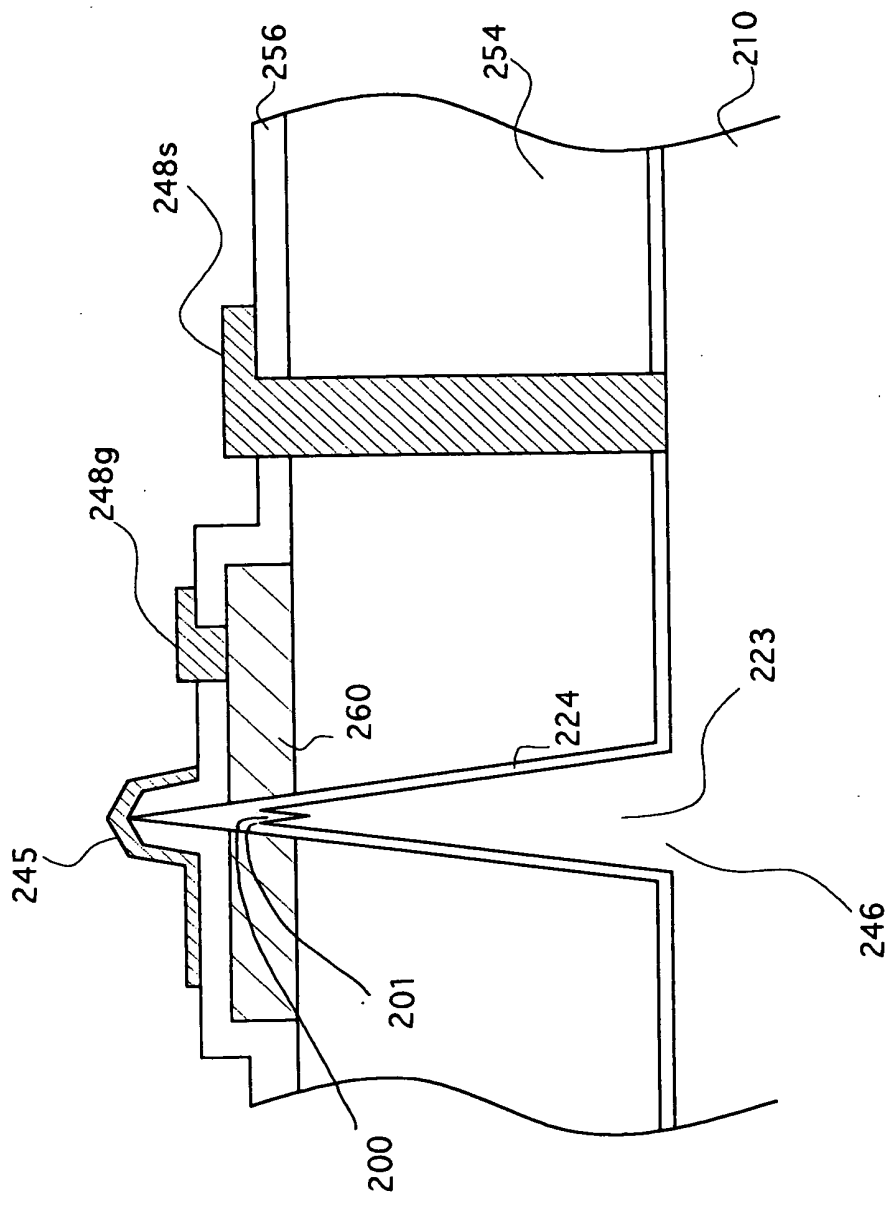


FIG. 22

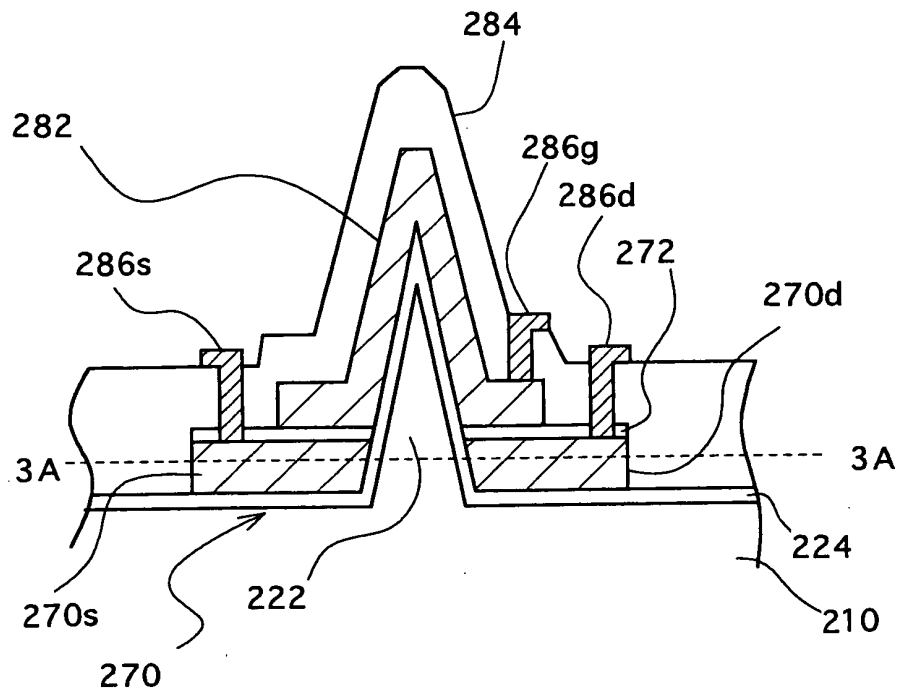


FIG. 23A

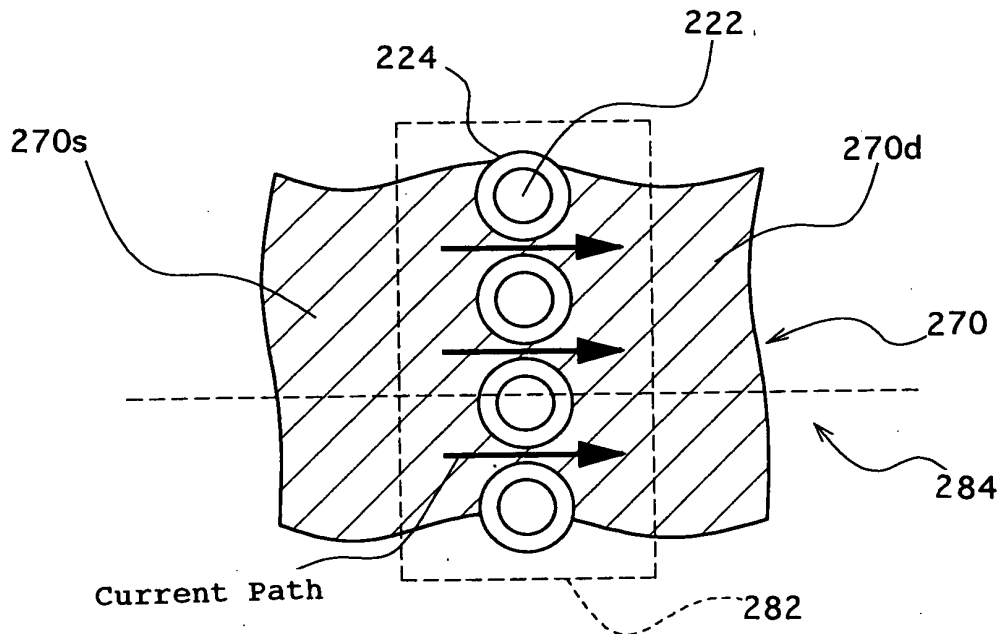


FIG. 23B

FIG. 24A

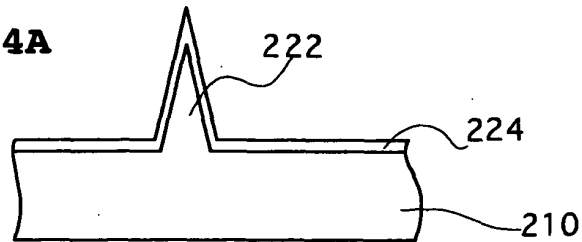


FIG. 24B

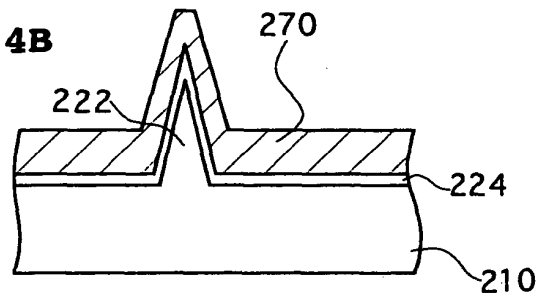


FIG. 24C

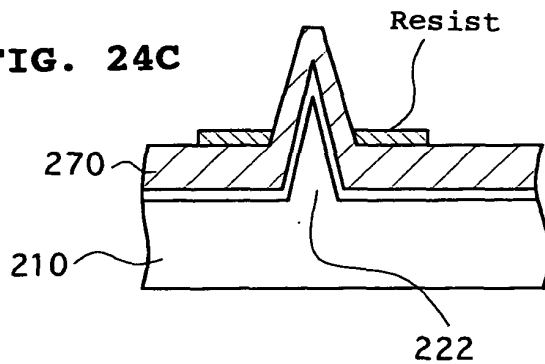


FIG. 24D

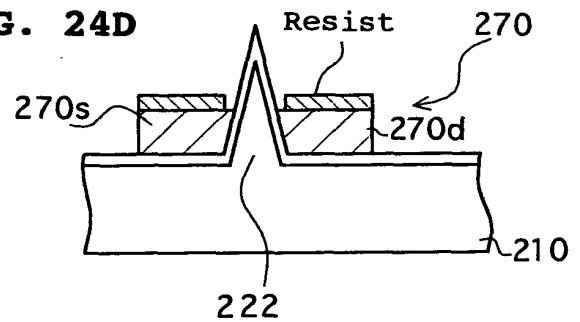
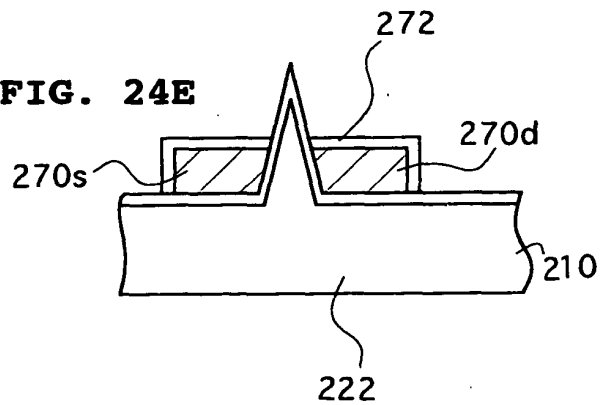
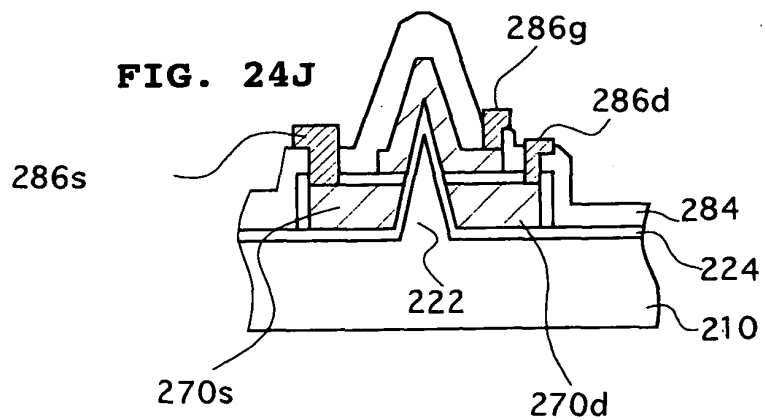
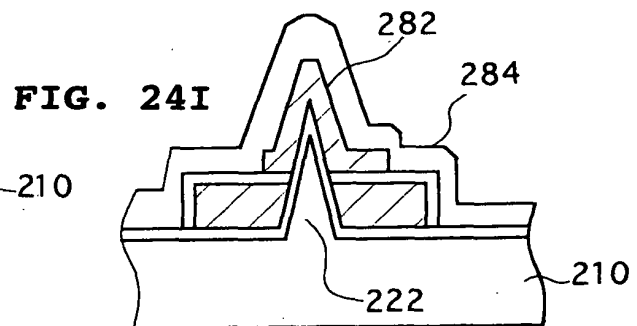
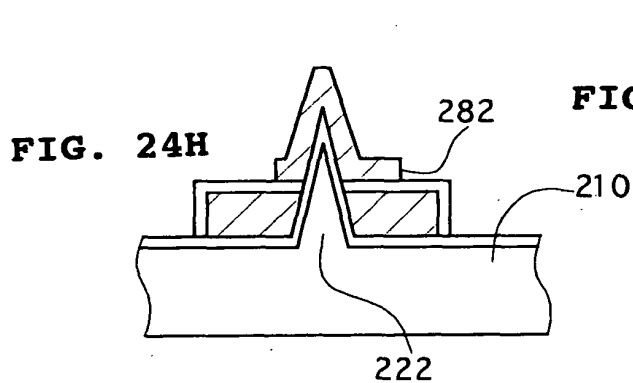
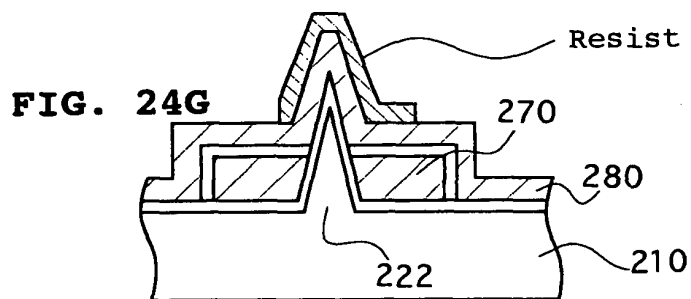
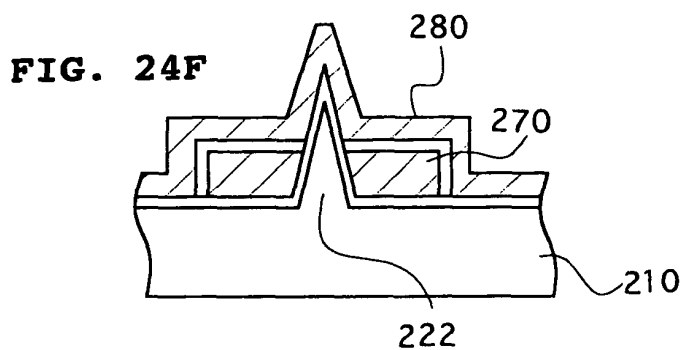


FIG. 24E





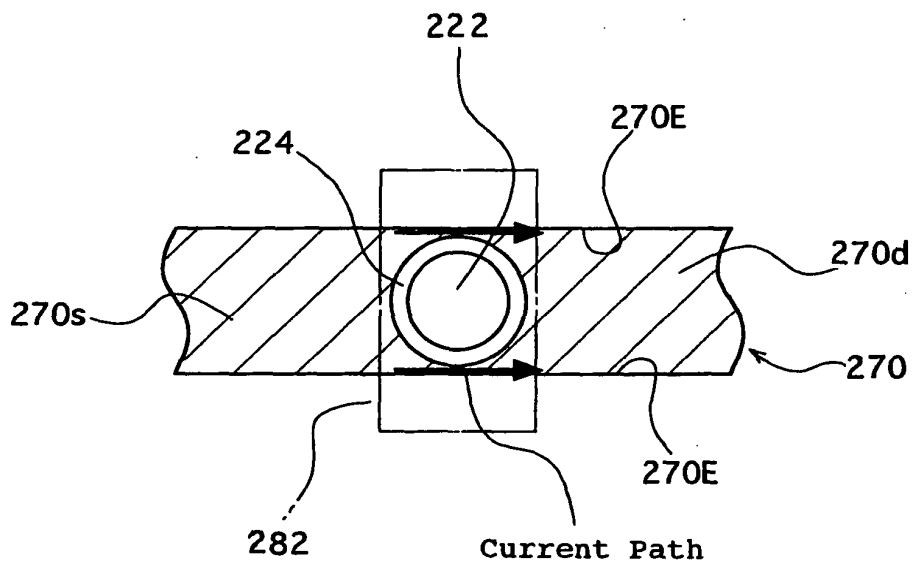


FIG. 25A

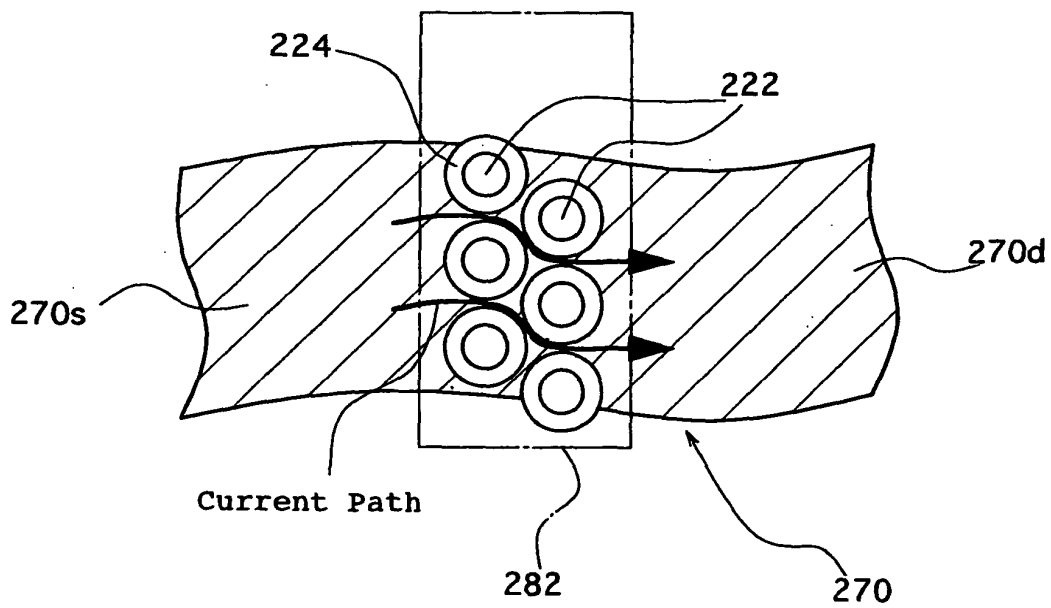


FIG. 25B

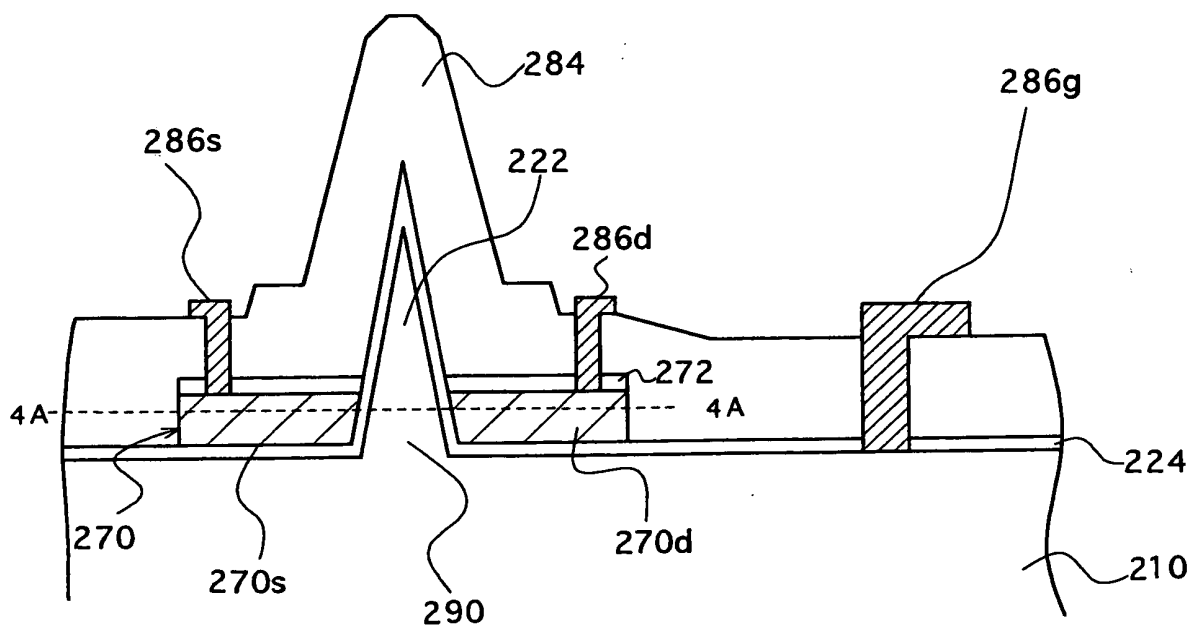


FIG. 26A

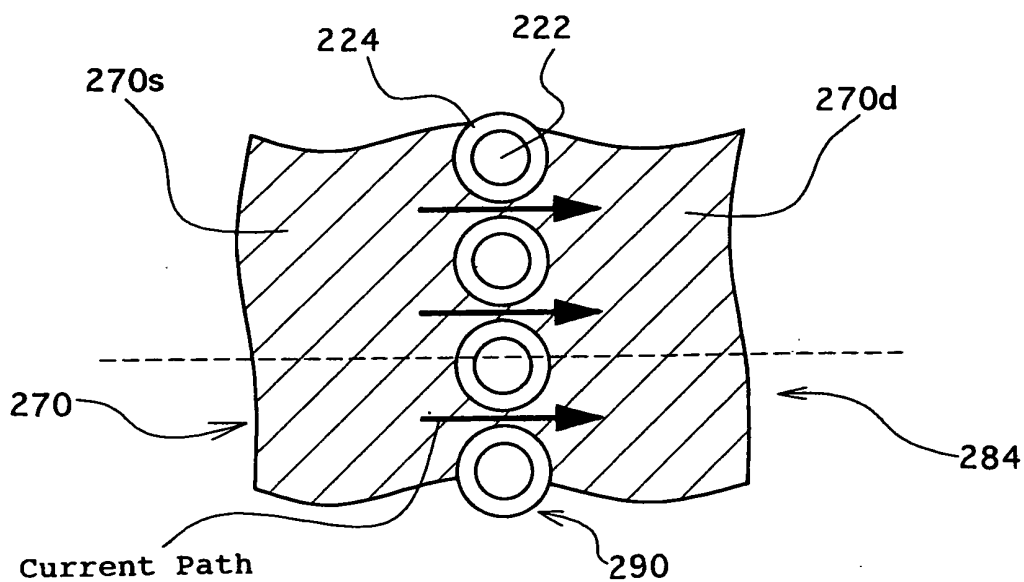


FIG. 26B

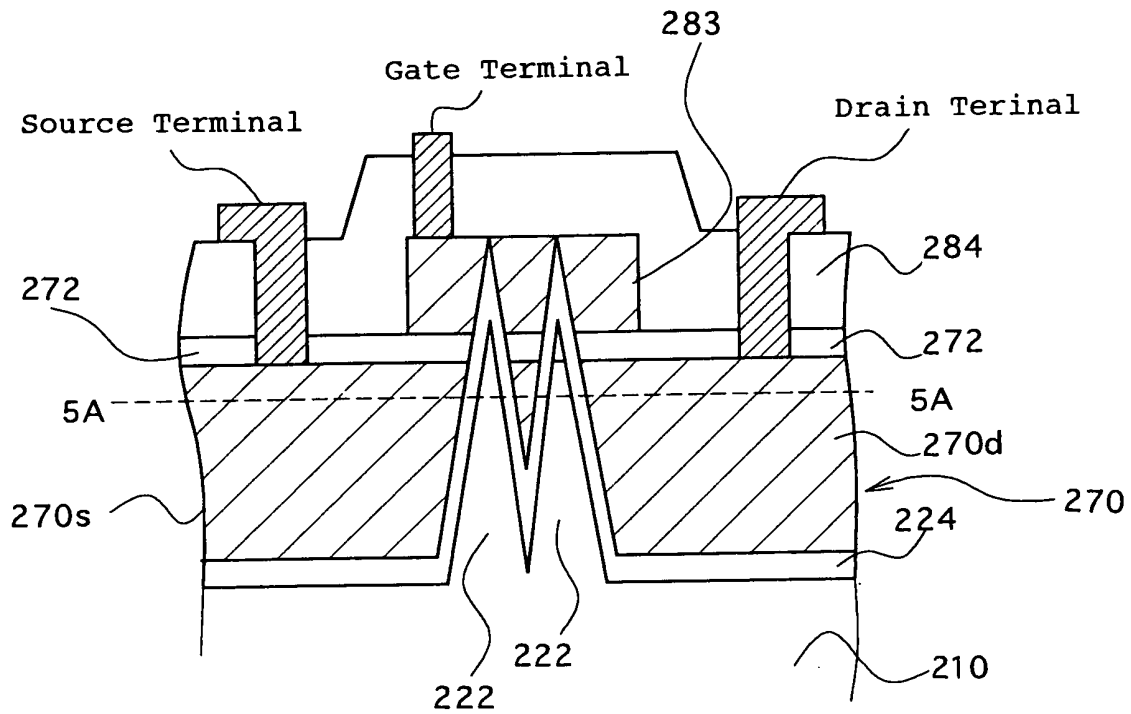


FIG. 27A

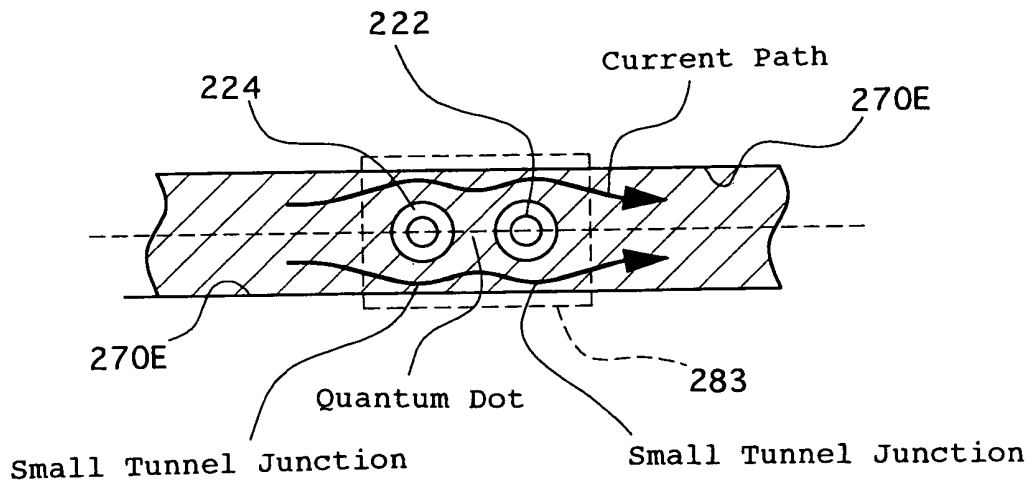


FIG. 27B

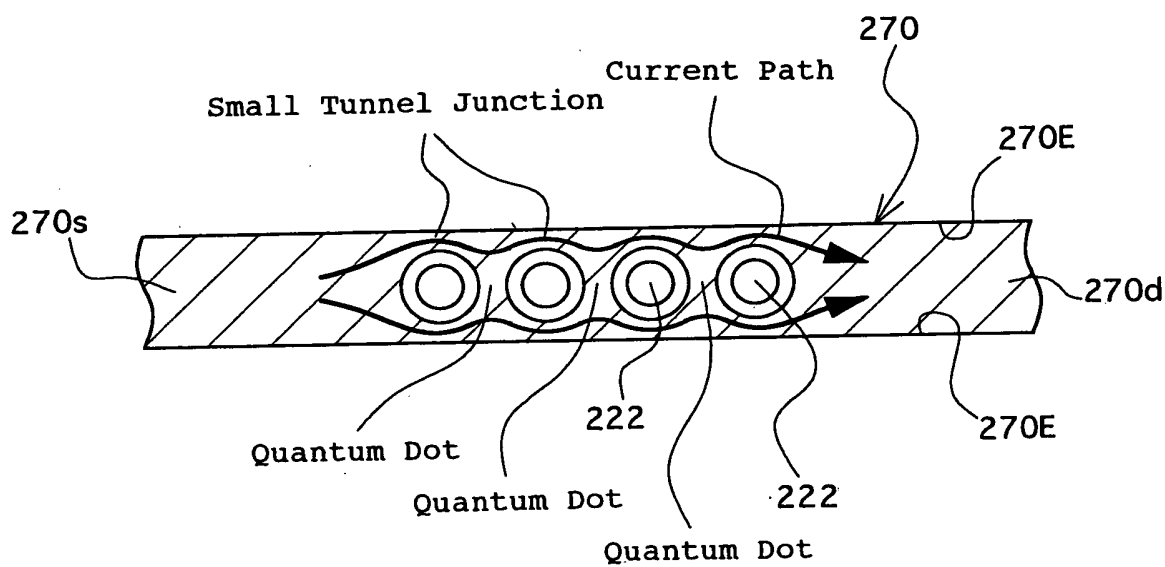


FIG. 28

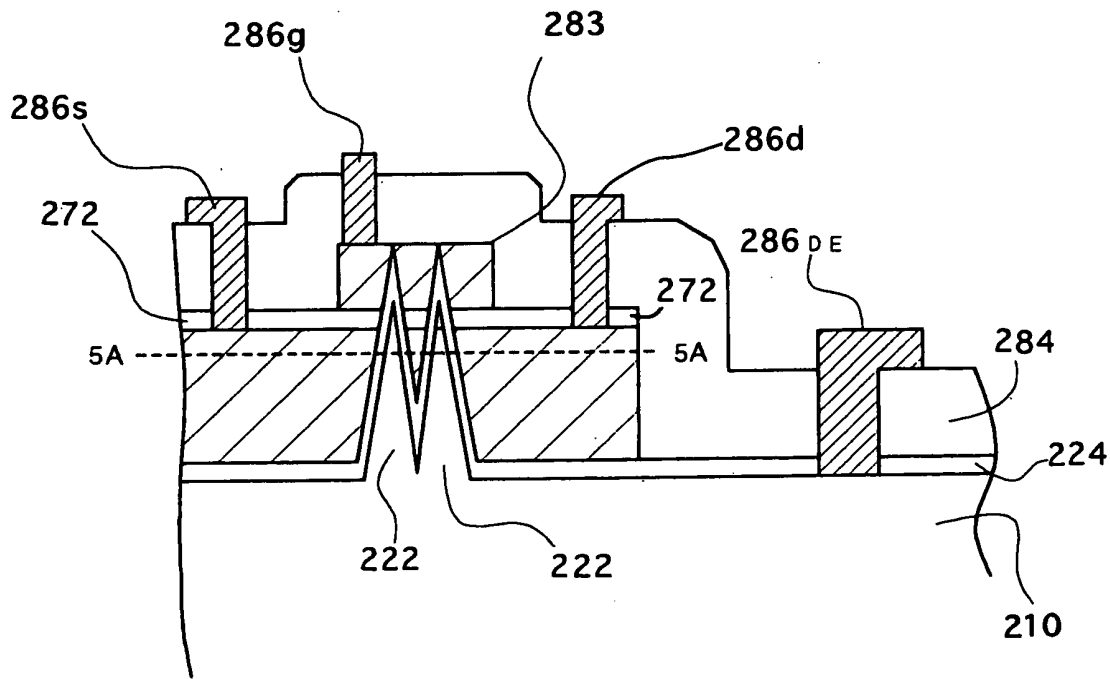


FIG. 29A

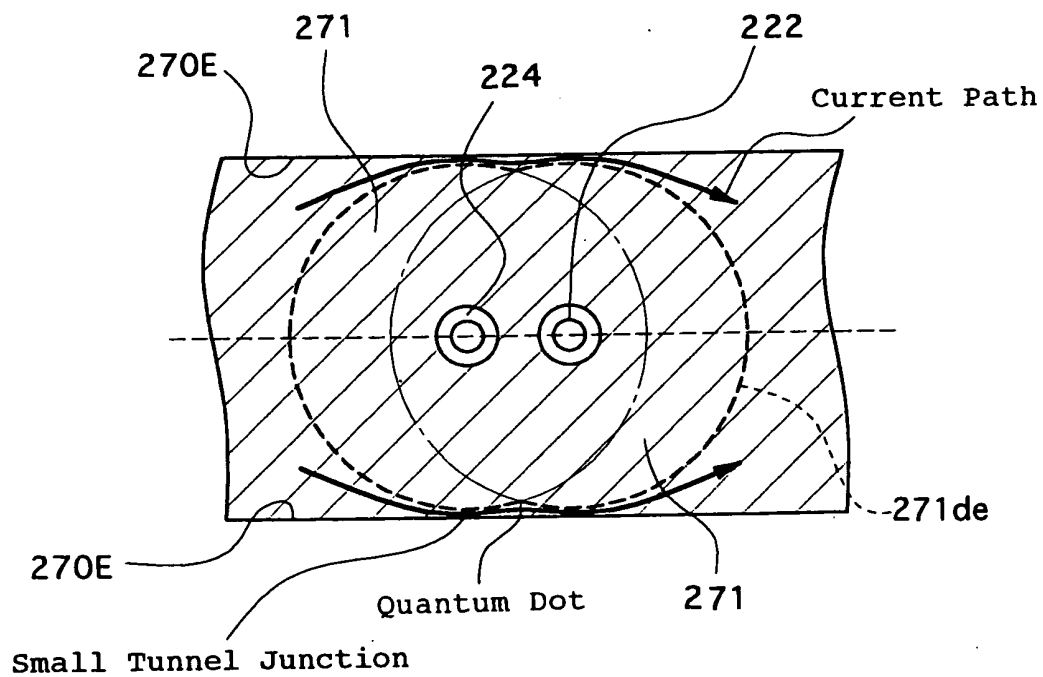


FIG. 29B

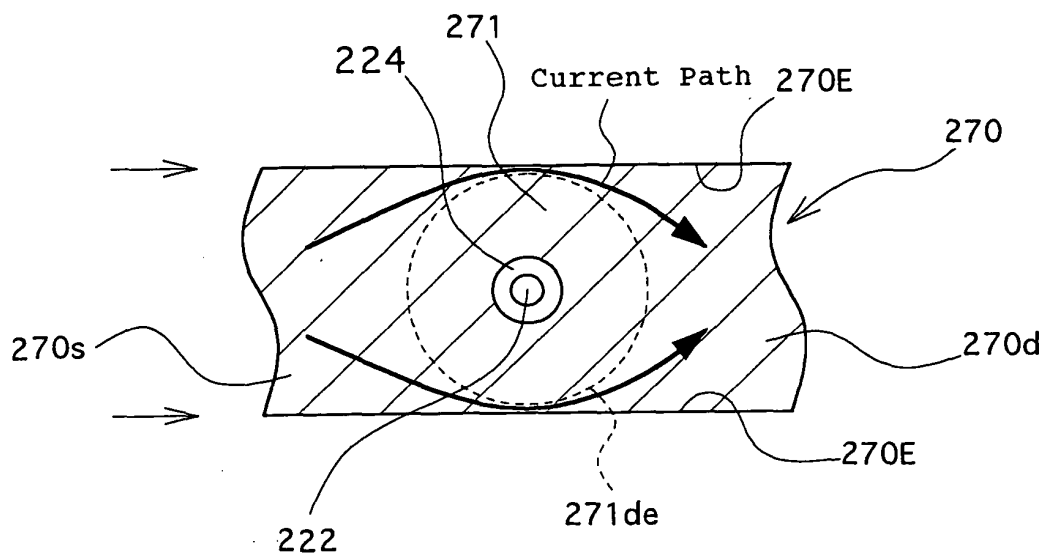


FIG. 30

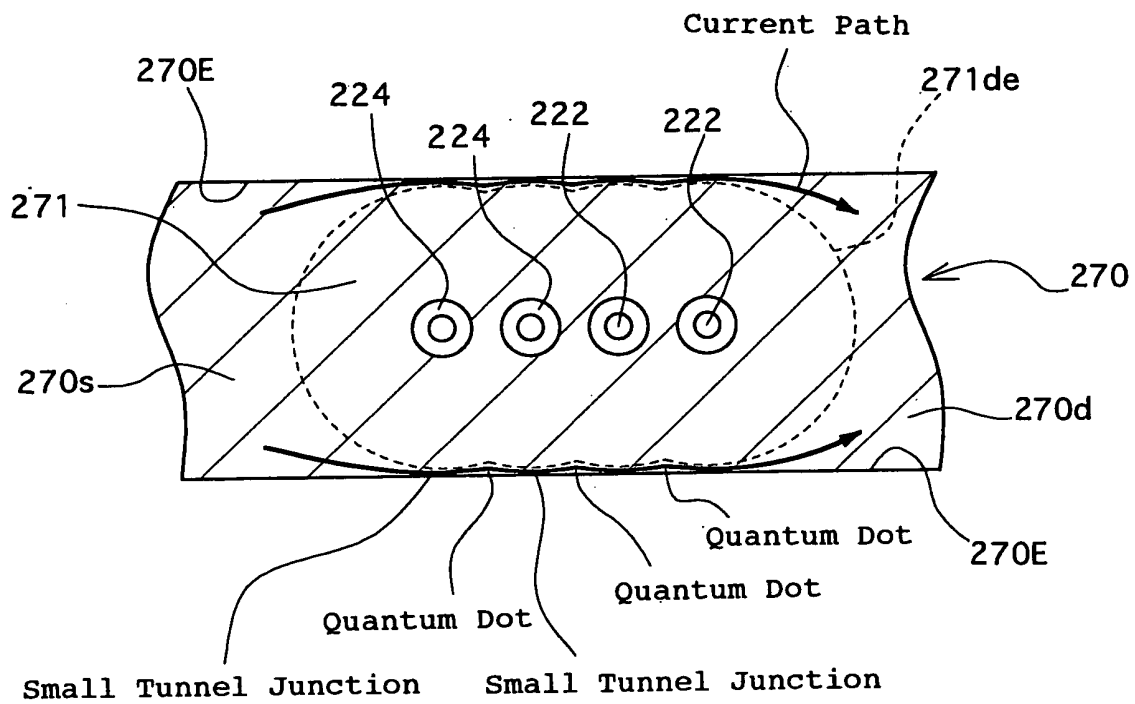


FIG. 31

068-03470-3

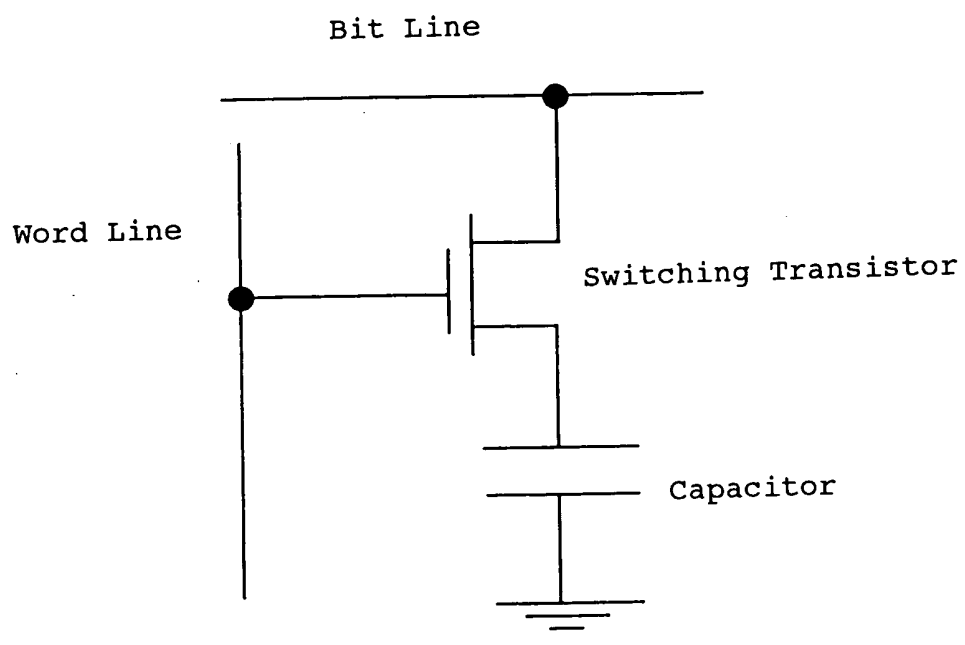


FIG. 32 PRIOR ART

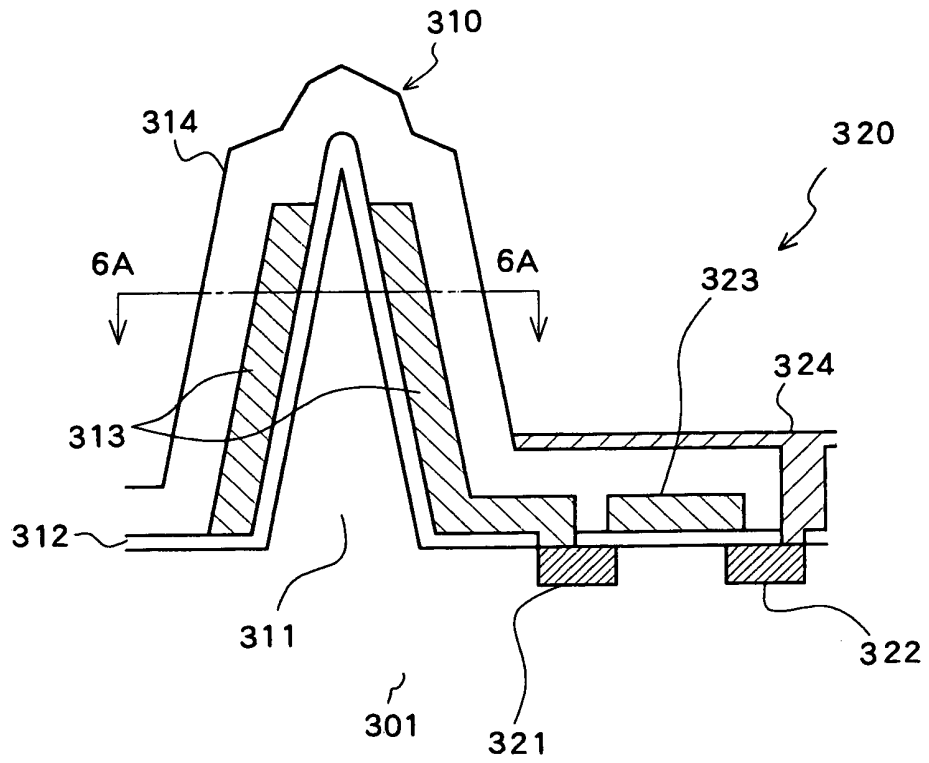


FIG. 33A

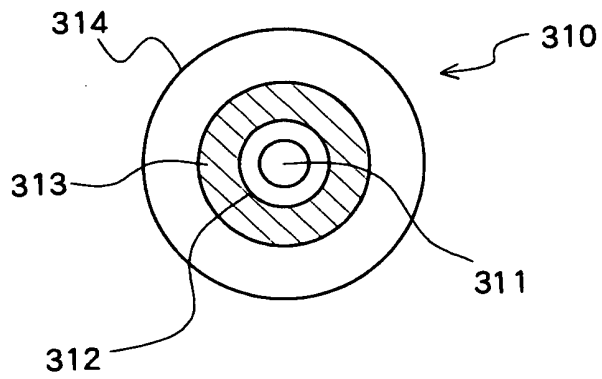


FIG. 33B

668707-42302400

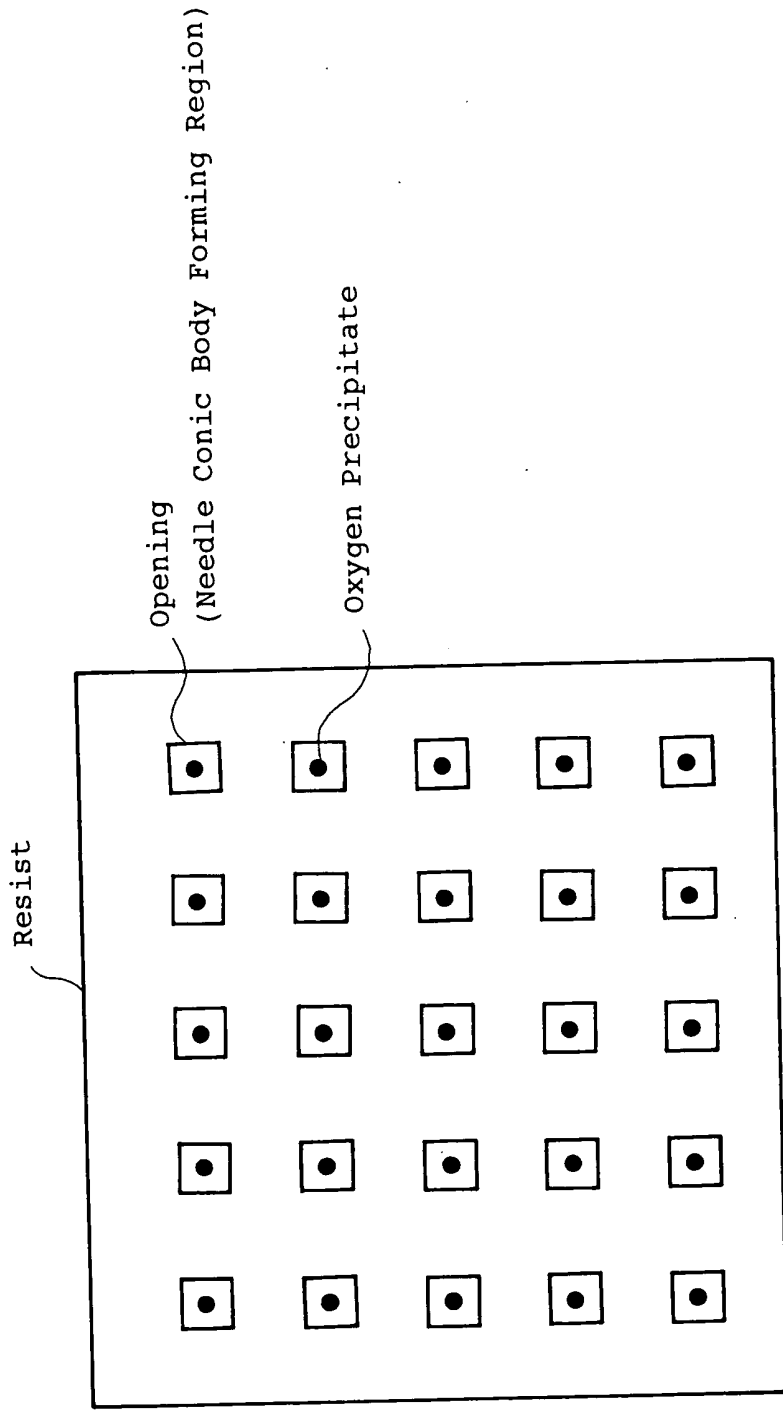
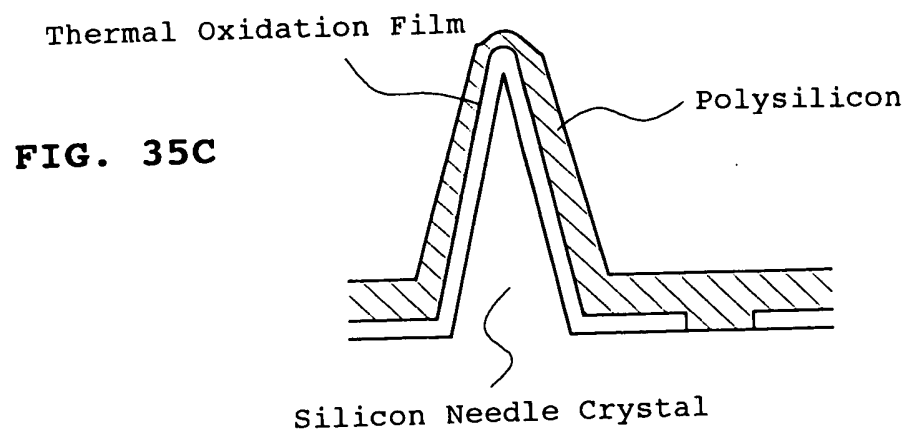
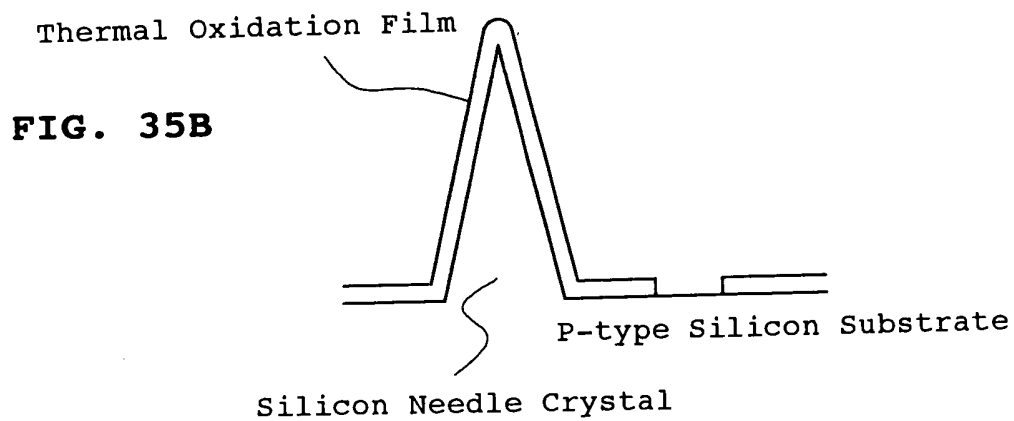
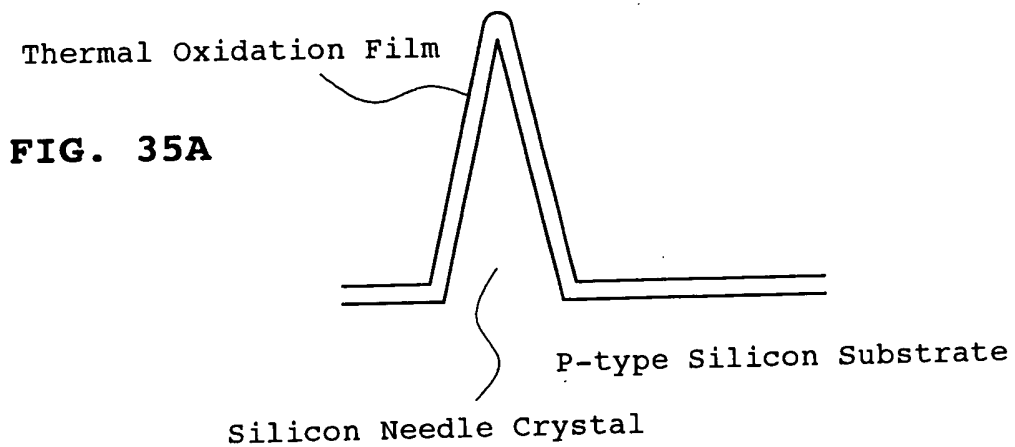
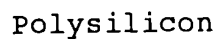


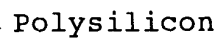
FIG. 34



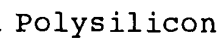
Thermal Oxidation Film



Thermal Oxidation Film

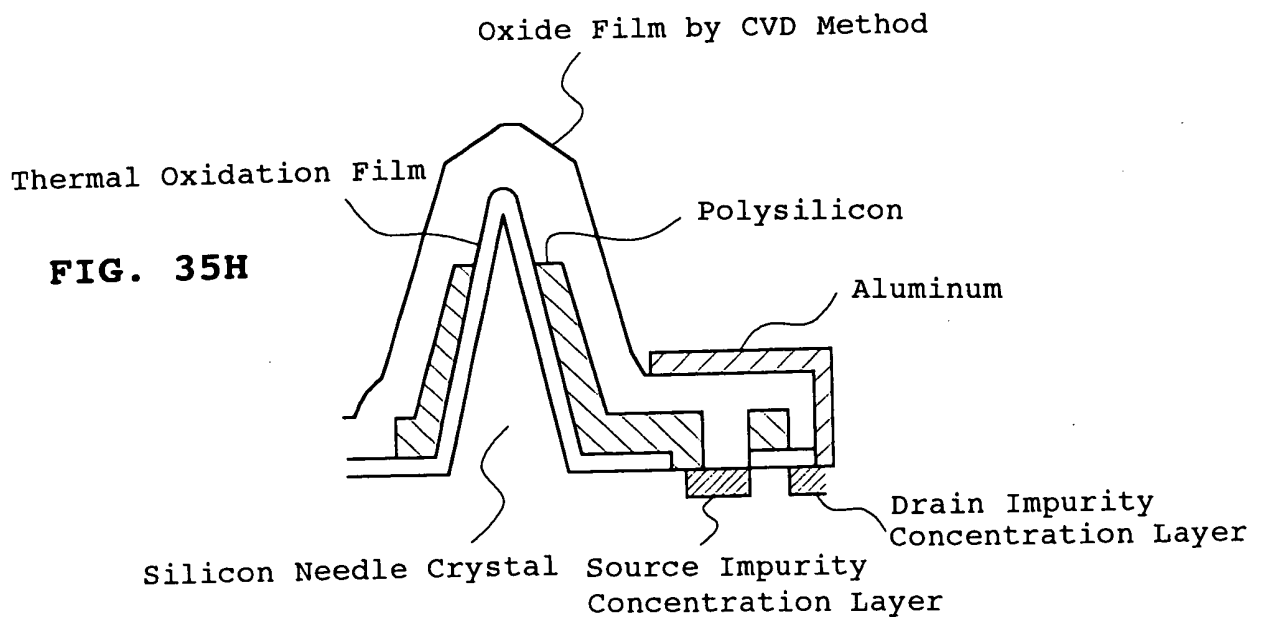
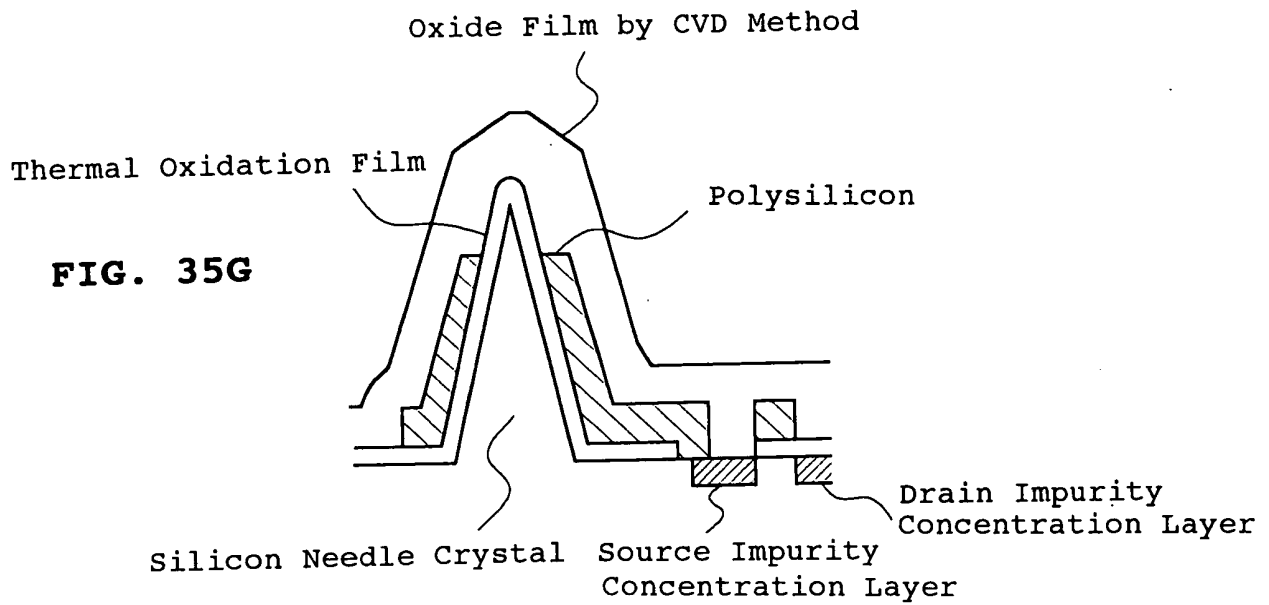


Thermal Oxidation, Film



Drain Impurity
Concentration
Layer

Source Impurity
Concentration Layer



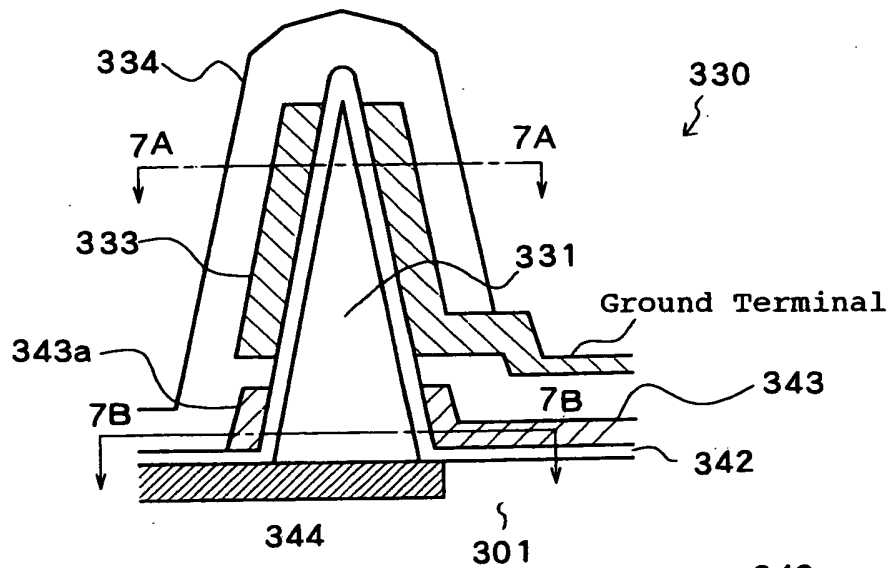


FIG. 36A

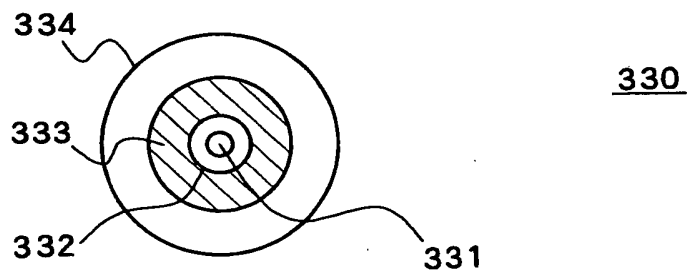


FIG. 36B

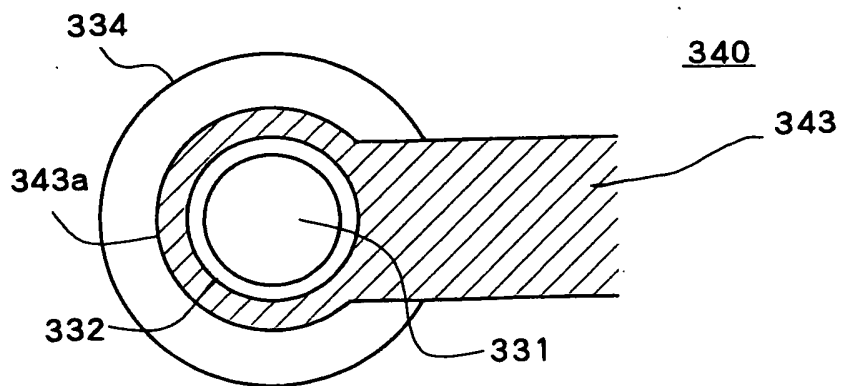
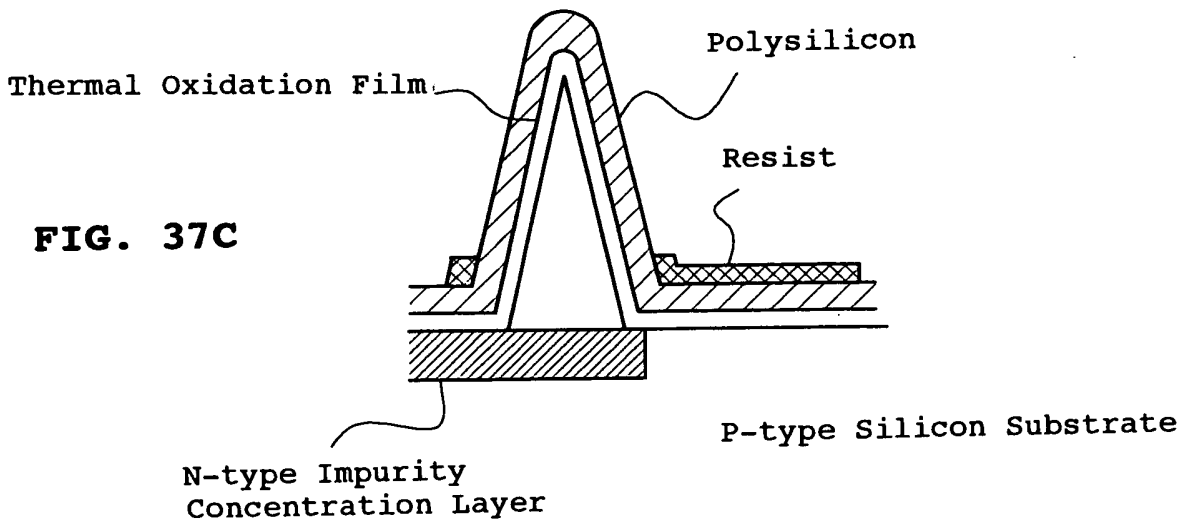
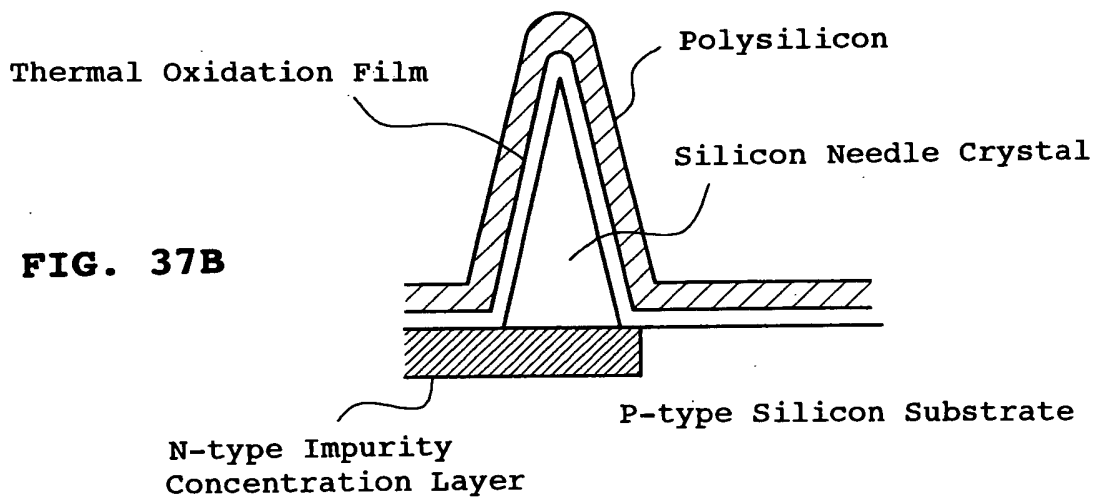
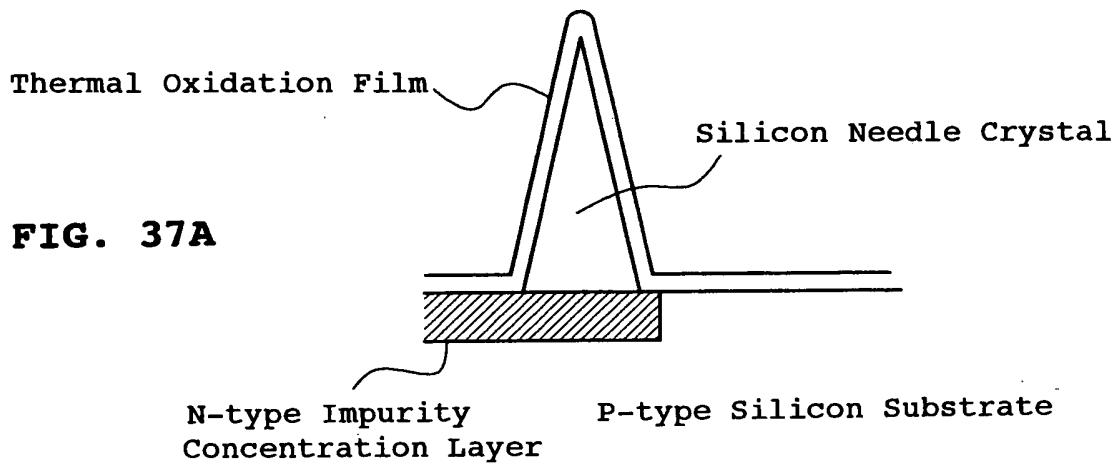
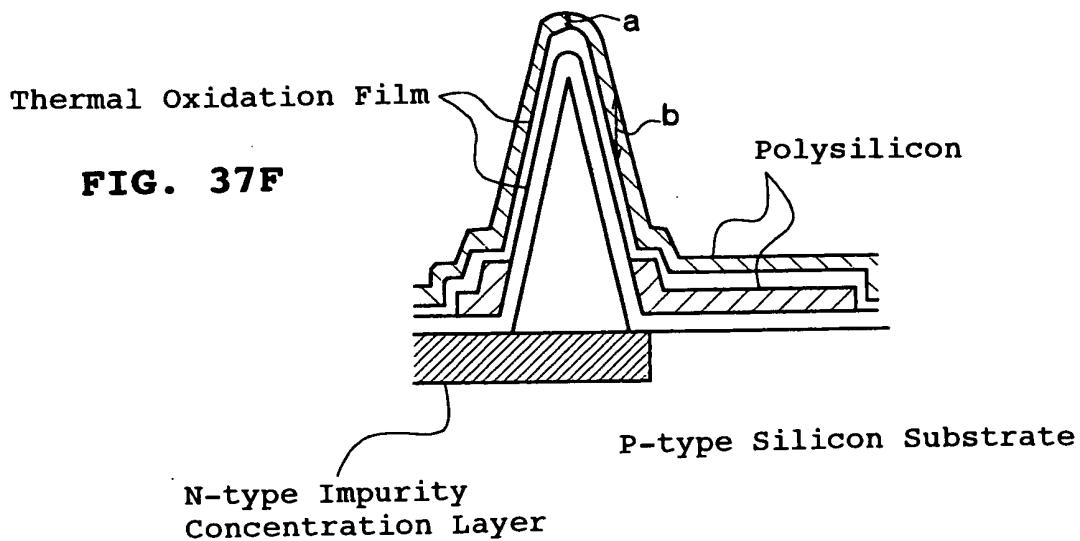
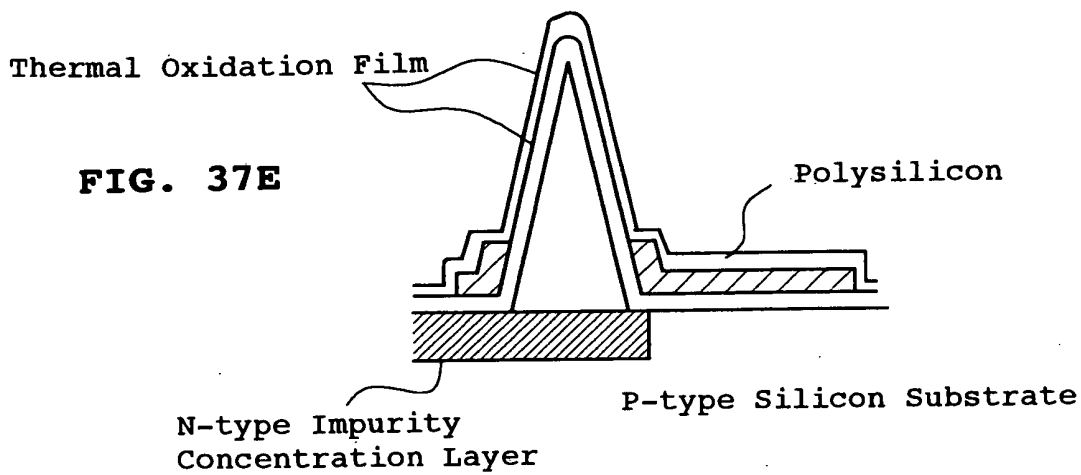
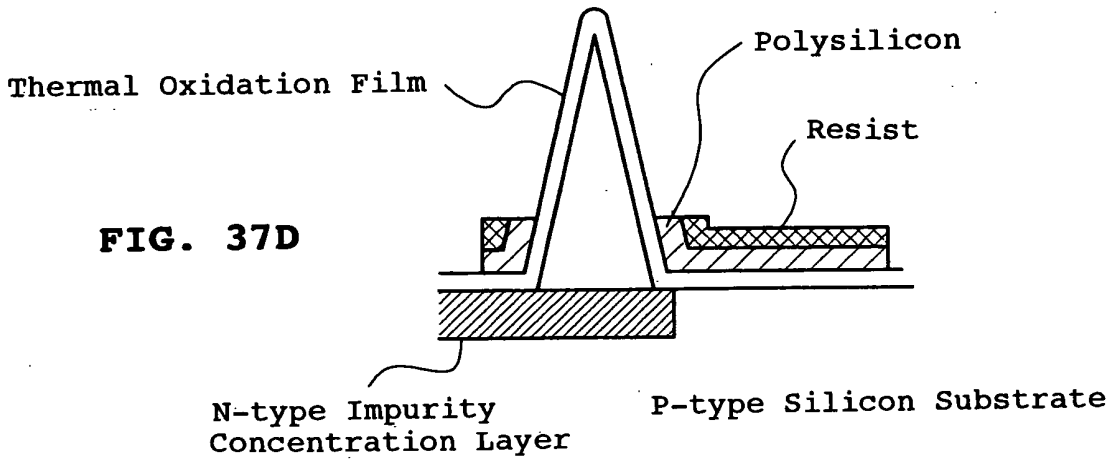


FIG. 36C

040544 101699





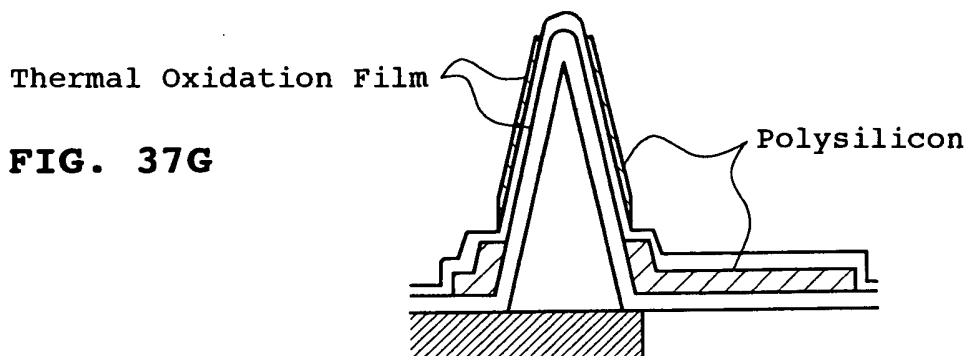


FIG. 37G

N-type Impurity Concentration Layer

P-type Silicon Substrate

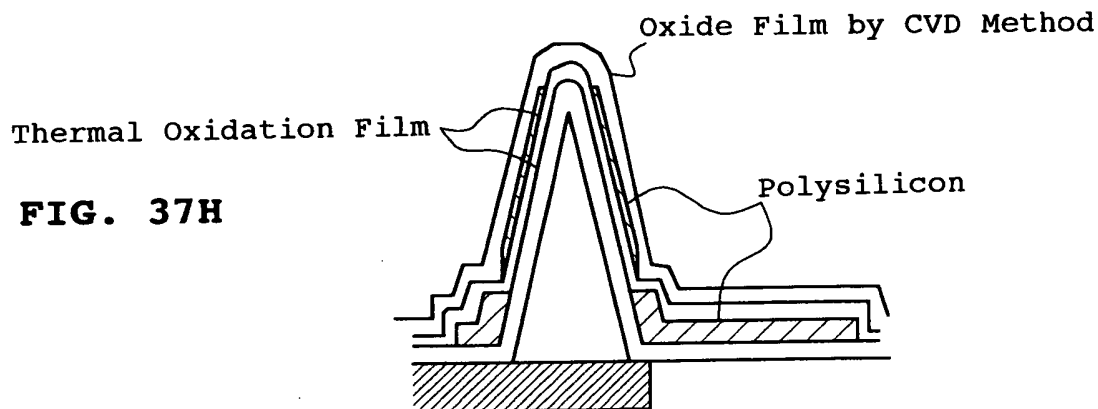


FIG. 37H

N-type Impurity Concentration Layer

P-type Silicon Substrate

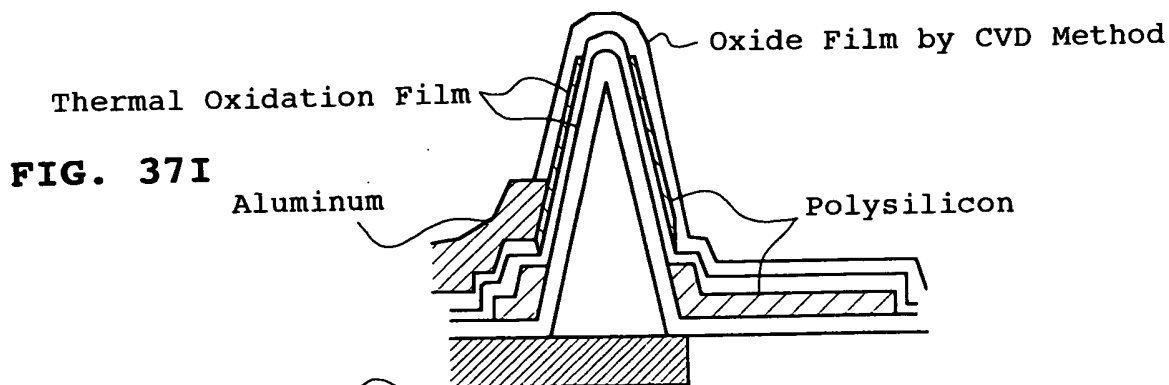


FIG. 37I

N-type Impurity Concentration Layer

P-type Silicon Substrate

669707 12502460

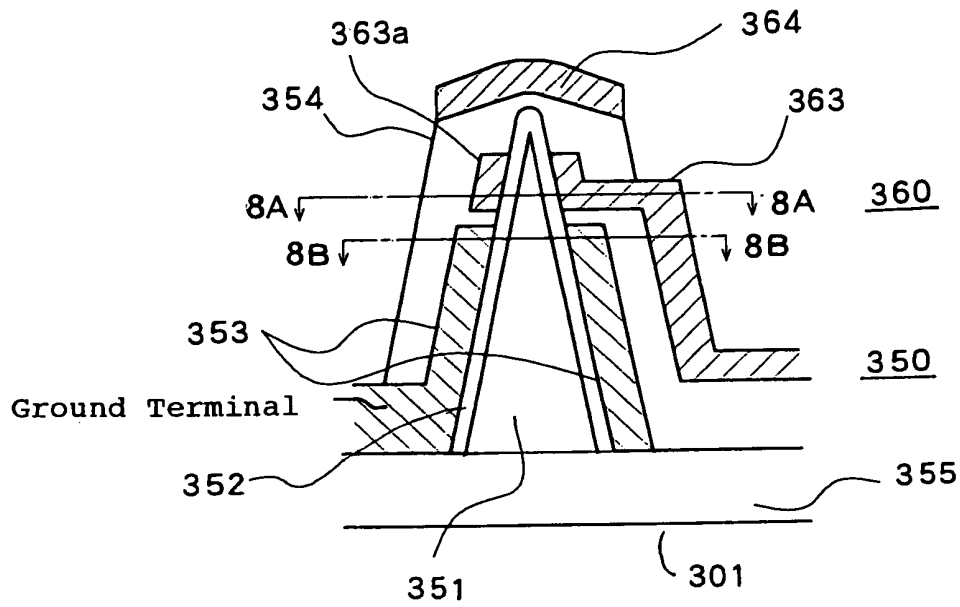


FIG. 38A

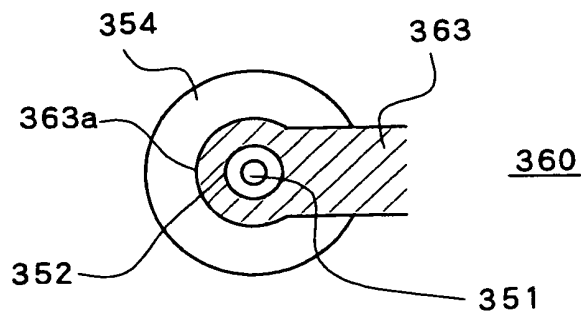


FIG. 38B

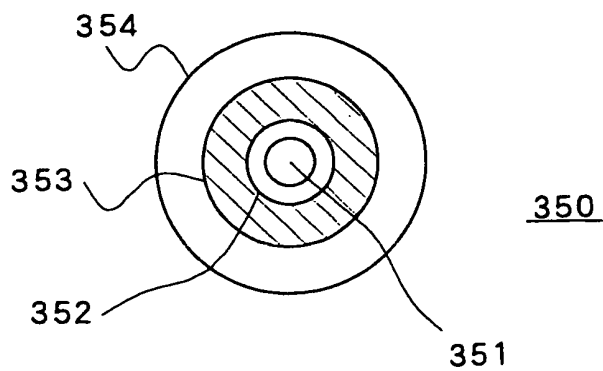
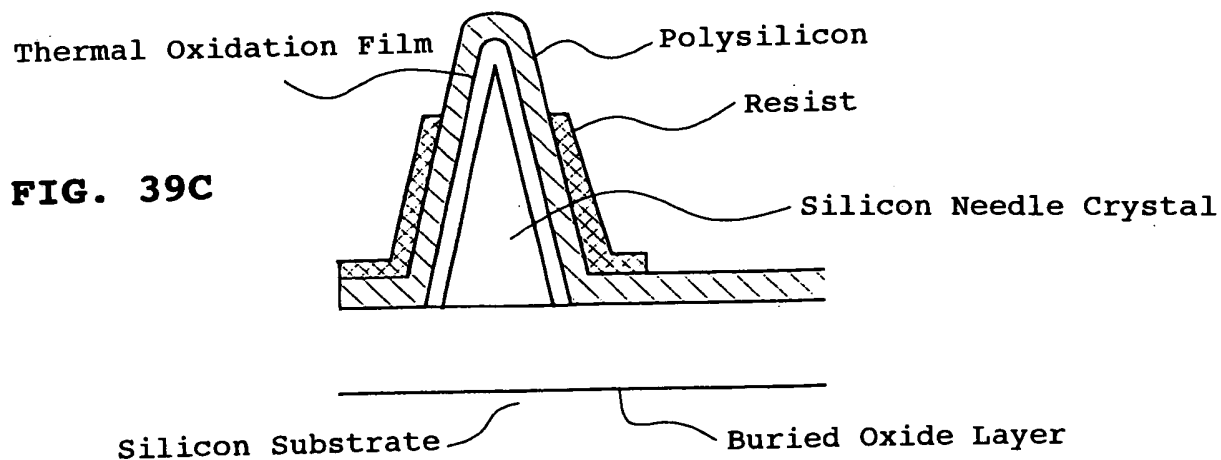
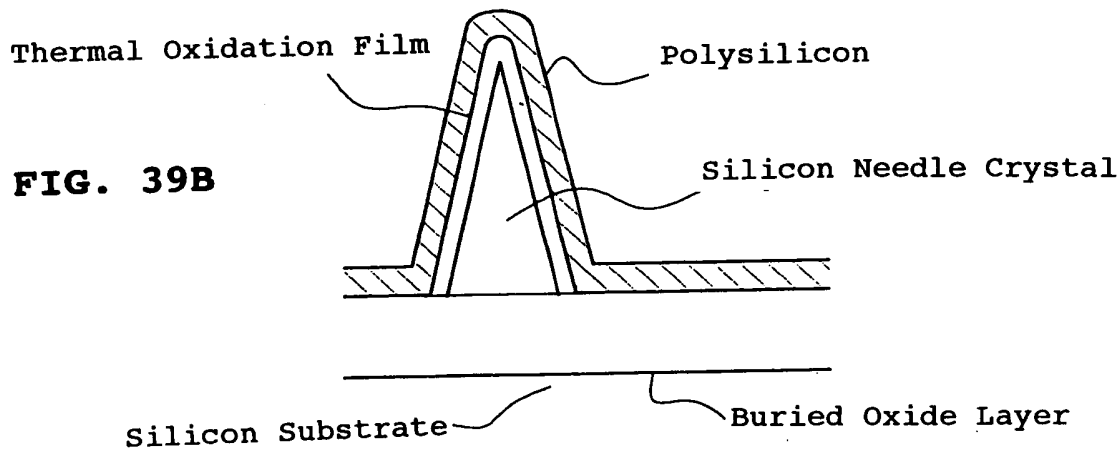
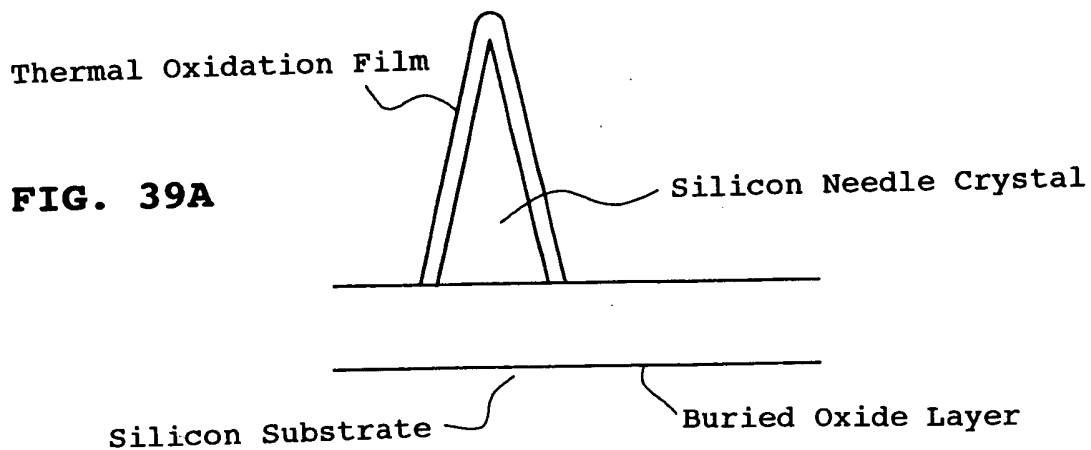


FIG. 38C

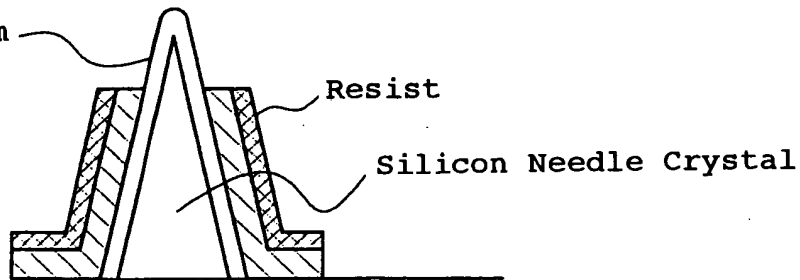
0040644 046000



00440524 404320

Thermal Oxidation Film

FIG. 39D

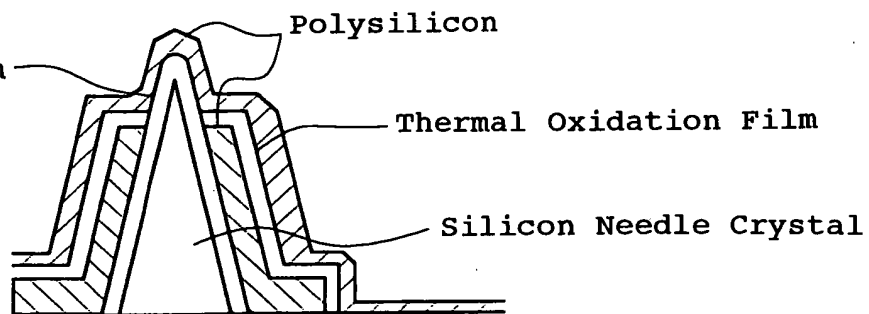


Silicon Substrate

Buried Oxide Layer

Thermal Oxidation Film

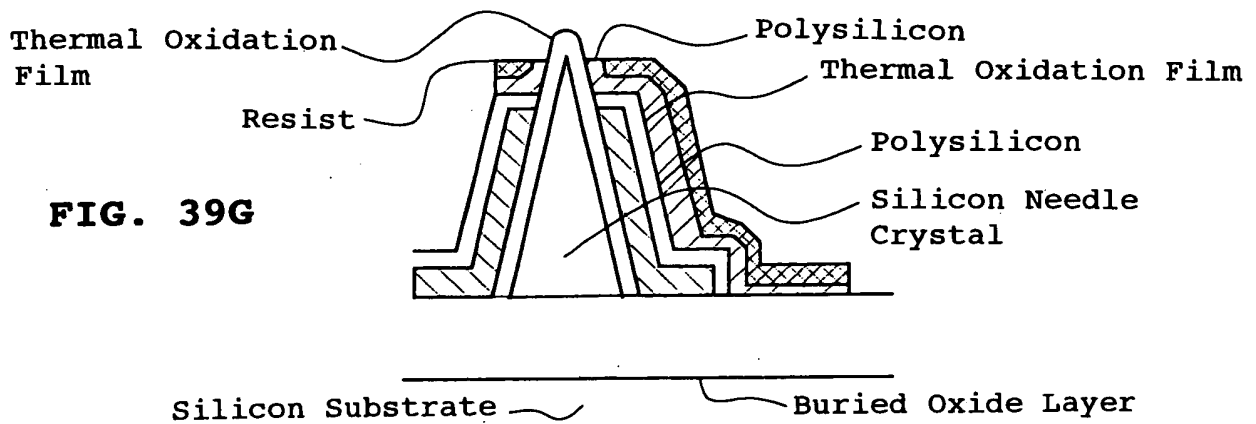
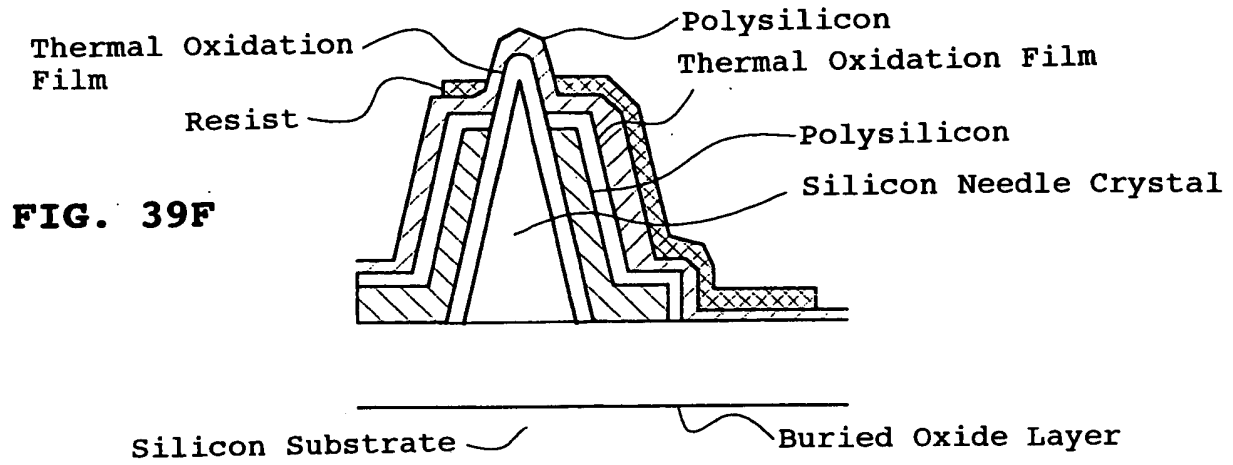
FIG. 39E



Silicon Substrate

Buried Oxide Layer

0080707 "42502160



0043054 404000

